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Vol. I

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1935

No. 767

DUPLATE CORPORATION AND PITTSBURGH PLATE GLASS COMPANY, PETITIONERS,

vs.

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA

No. 768

DUPLATE CORPORATION AND PITTSBURGH PLATE GLASS COMPANY, PETITIONERS,

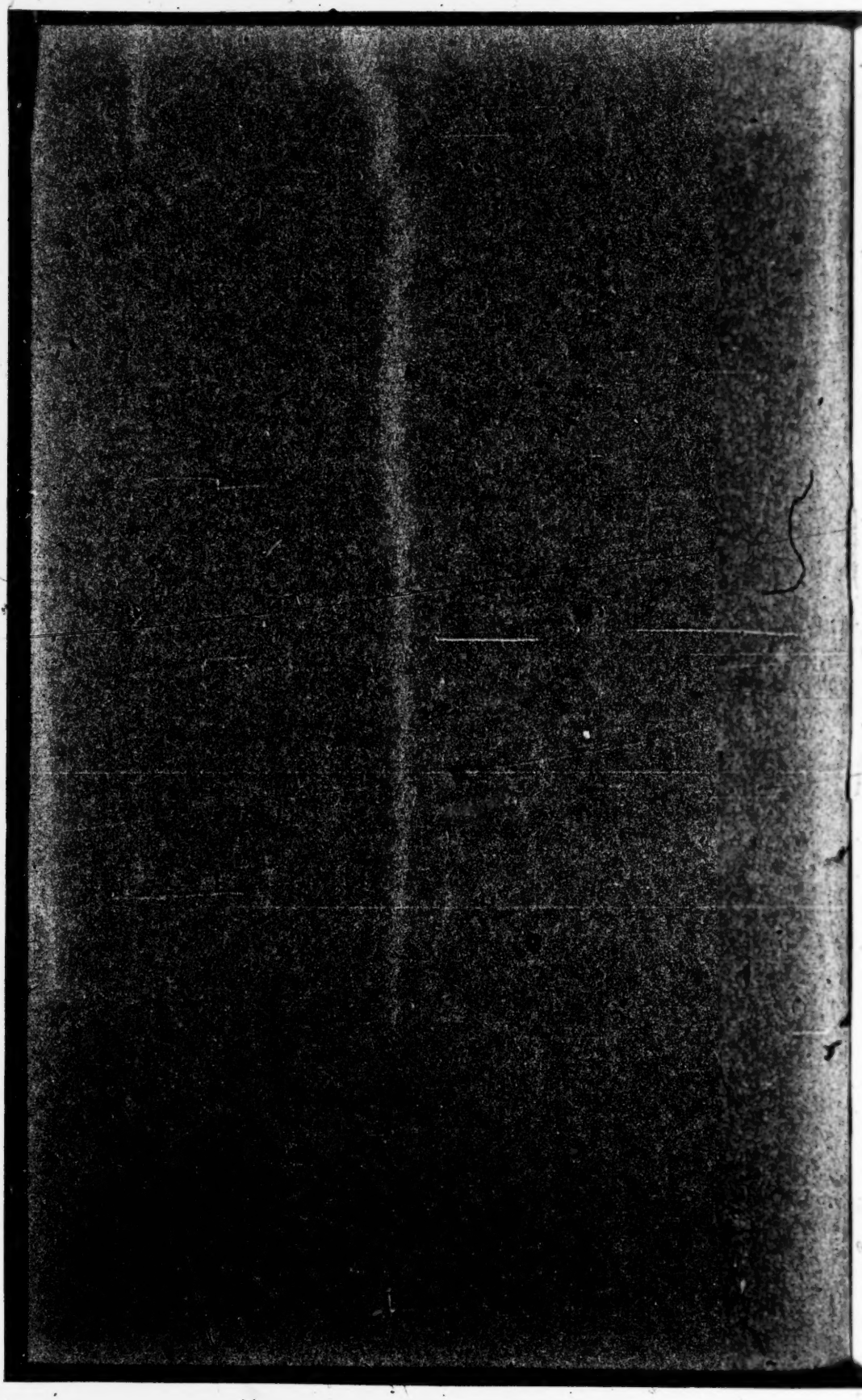
vs.

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA

ON WRITS OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE THIRD CIRCUIT

PETITION FOR CERTIORARI FILED FEBRUARY 21, 1936.

CERTIORARI GRANTED MARCH 30, 1936.



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ON WRITS OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE THIRD CIRCUIT

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JUDD & DETWEILER (INC.), PRINTERS, WASHINGTON, D. C., APRIL 3, 1936.

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[fol. 1]

IN UNITED STATES DISTRICT COURT, WESTERN DISTRICT OF PENNSYLVANIA

In Equity. No. 2295

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA

v.

PITTSBURGH SAFETY GLASS COMPANY, Name Changed to DUPLATE CORPORATION and PITTSBURGH PLATE GLASS COMPANY

DOCKET ENTRIES

Dec. 31, 1928. Bill of Complaint filed.
Dec. 31, 1928. Subpoena issued.
Jan. 4, 1929. Subpoena returned served by handing to and leaving a true and attested copy with H. B. Higgins, Secretary of Pittsburgh Safety Glass Co. at Pittsburgh, Pa., on Jan. 3, 1929.
Jan. 9, 1929. Stipulation filed extending time for defendant to file its answer to and including March 4, 1929.
Mar. 4, 1929. Answer filed.
May 23, 1929. On motion of plaintiff, Interrogatories filed by leave of Court.
May 23, 1929. Copy of interrogatories mailed to Christy & Christy.
June 27, 1929. Defendant's answers to Interrogatories filed by plaintiff.

[fol. 2]

June 27, 1929. Copy of Answer mailed to Brown & Critchlow .
June 29, 1929. Motion for more particular statement of the nature of plaintiff's claim filed and order entered directing plaintiff to answer the foregoinf within ten days from this date.

DOCKET ENTRIES—Continued

July 11, 1929. Plaintiff's bill of particulars filed.
Sept. 3. 1929. Hearing before Schoonmaker, J.
Sept. 16, 1929. Stipulation as to certain facts and exhibits filed.
Nov. 16, 1929. Opinion filed and entered concluding that said patent is valid and has been infringed; the plaintiff is entitled to the relief prayed for; let a decree be submitted accordingly.
Dec. 9, 1929. Decree filed and entered adjudging that Letters Patent No. 1,182,739, are good and valid, and the property of the plaintiff; that the defendant has infringed on said patent; that the defendant be enjoined from further infringement; that the plaintiff recover for its costs, damages etc; that the case be referred to G. Dixon Shrum as Special Master for an accounting.
Dec. 9, 1929. Stipulation changing the name of the defendant on record from Pittsburgh Safety Glass Company to Duplate Corporation filed by Order of Court.
Dec. 9, 1929. On petition of defendant, Order entered allowing an appeal.

[fol. 3]

Dec. 9, 1929. Assignments of error attached.
Dec. 9, 1929. Order of Court filed and entered suspending the injunction pending appeal, upon the defendant filing a bond in the sum of $50,000.00.
Dec. 9, 1929. Citation mailed to C. C. of Appeals.
Dec. 10, 1929. Appeal bond approved by the Court and filed.
Jan. 9, 1930. Order of Court filed and entered extending time for defendant to file transcript of record in the U. S. Circuit Court of Appeals to Feb. 20, 1930.
July 17, 1930. Copy of Opinion of C. C. of Appeals received and filed.

DOCKET ENTRIES—Continued

Aug. 18, 1930. Mandate received from Circuit Court of peals affirming the decision of this Court with costs; Triplex Safety Glass Co. to recover against the said Duplate Corp. the sum of $20.00 for its costs expended herein.

Aug. 19, 1930. Injunction order filed and entered directing that injunction carried by the interlocutory decree of Dec. 9, 1929 be issued forthwith.

Aug. 19, 1930. Permanent Injunction issued.

Aug. 28, 1930. Permanent Injunction returned service acknowledged by attorney for defendant.

Jan. 24, 1931. On motion of plaintiff, rule granted on defendant to show cause why it should not be adjudged in contempt of Court.

[fol. 4]

Jan. 24, 1931. Affidavit of Arthur W. Thomas filed.

Jan. 24, 1931. Affidavit of Willard L. Morgan, with exhibits, filed.

Feb. 14, 1931. Defendant's motion to discharge rule to show cause why it should not be adjudged in Contempt filed.

Feb. 24, 1931. Affidavits for defendant sur proceedings for contempt filed.

Feb. 28, 1931. Rebuttal Affidavit of Willard L. Morgan filed.

Mar. 3, 1931. Hearing on motion to discharge rule granted Jan. 24, 1931, before Schoonmaker, J.—Motion denied.

Mar. 3, 1931. Hearing on rule for contempt—argued C. A. V.

Mar. 13, 1931. Opinion filed and entered denying plaintiff's motion to adjudge defendant in contempt; an order to be submitted.

May 13, 1931. Transcript of testimony filed.

Oct. 7, 1931. Notice and motion for leave to file supplemental bill filed.

Oct. 7, 1931. Supplemental bill of complaint filed by leave of Court.

Oct. 7, 1931. Subpœna issued.

DOCKET ENTRIES—Continued

Oct. 8, 1931. Subpœna returned served on Marshall A. Christy, attorney who accepted service for both defendants at Pittsburgh, Pa., on October 8, 1931.

Oct. 21, 1931. Answer of Pittsburgh Plate Glass Co. filed to Supplemental Bill of Complaint.

[fol. 5]

Dec. 5, 1931. Interlocutory decree upon supplemental bill and answer filed and entered adjudging, that Pittsburgh Plate Glass Co. has jointly with Duplate Corp. infringed Letters Patent No. 1,182,739; that a perpetual injunction issue against said Pittsburgh Plate Glass Co.; that the plaintiff recover from said defendant its damages; that this matter be referred to G. Dixon Shrum, Special Master; that the defendant pay the costs.

Dec. 16, 1931. Order of Court filed and entered releasing the surety on the bond filed Dec. 10, 1929.

Jan. 26, 1932. Præcipe for appearance of Smith, Buchanan, Scott & Gordon for defendants filed.

Apr. 20, 1932. Petition of defendant to sustain exceptions; certificate of Special Master; and renewal of defendants exceptions filed.

Apr. 23, 1932. Answer of plaintiff to petition of defendant filed.

June 10, 1932. Opinion sur defendant's application for review of an incidental ruling of Special Master filed; order to be submitted.

June 22, 1932. Order of Court filed and entered denying without prejudice the application of the Pittsburgh Plate Glass Co. for a review of the incidental ruling of the Special Master; they to file exceptions to the whole or any part of any final report of the master.

[fol. 6]

Oct. 21, 1932. Defendants petition with respect to production and examination of certain books and records of plaintiff filed.

DOCKET ENTRIES—Continued

Oct. 21, 1932. Opinion filed and entered denying defendant's petition; without prejudice, to the right of defendant's to raise the same question by exception to the Master's report—an order may be submitted accordingly.

Oct. 31, 1932. Order of Court filed and entered denying defendant's motion, directing the plaintiff to produce its books and records, without prejudice, to the right of defendants to raise the same question by exception to the Masters final report.

Jan. 12, 1934. Report of Special Master sur account filed.

Jan. 18, 1934. Proof of service of notice of return of Masters report to Clerks office, filed.

Jan. 31, 1934. Defendant's exceptions to Master's report filed.

Feb. 1, 1934. Plaintiffs exceptions to masters report filed.

Mar. 27, 1934. Notice to defendants that motion are to be presented filed.

Apr. 3, 1934. Motion to dismiss plaintiffs exception to the report of the master filed.

Apr. 3, 1934. Argued before Schoonmaker, J. C. A. V.

[fol. 7]

Apr. 3, 1934. Trial memo filed.

May 1, 1934. Opinion filed and entered over-ruling exceptions to Master's report, and confirming same absolutely; assessing costs of accounting against defendant-, allowing interest on the award of damages from the day infringement ceased; Decree to be submitted.

May 25, 1934. Plaintiff's bill of costs filed.

June 28, 1934. Supplemental opinion filed and entered sustaining defendants' exception No. 11 to the extent of the award of $2807.89 as specific damages due to reduced selling price, in addition to award of a reasonable royalty.

DOCKET ENTRIES—Continued

July 2, 1934. Final decree filed and entered overruling plaintiff's exceptions to the Master's report, defendants exceptions to the Master's report is confirmed absolutely; plaintiff's motion to assess interest at the rate of 6% per annum from the date the infringement ceased is hereby granted; plaintiff to recover from dedefendants its costs in the amount of $8332.25; plaintiff to have judgment in the total amount of $523,912.52, with interest at 6% per annum until paid.

Aug. 2, 1934. On motion of plaintiff order entered directing that opinion dated May 1, 1934, supplemental opinion dated June 28, 1934

[fol. 8] Special master's Findings of fact & conclusions of law, as set forth in Findings of fact numbered 1-26 and conclusions of law numbered 1-18 dated Jan. 12, 1934 except Special Master's Conclusion of law 17, be adopted as Findings of Fact & Conclusions of law in conformity with Equity rule #70½.

Aug. 27, 1934. On motion of plaintiff, order entered directing matter to be adopted as Findings of Fact and Conclusions of law in above case—defendant- except, exception noted and Billed sealed.

Sept. 6, 1934. On petition of Duplate Corporation and Pittsburgh Glass Co. order entered allowing appeal.

Sept. 6, 1934. Assignments of Error filed.

Sept. 6, 1934. Citation issued returnable Oct. 6, 1934.

Sept. 6, 1934. Stipulation filed and order entered waiving the filing of appeal cost bond of each party.

Sept. 17, 1934. On petition of Triplex Safety Glass Co. order entered allowing appeal.

Sept. 17, 1934. Assignment of errors filed.

Sept. 17, 1934. Notice of appeal filed with acceptance of service thereon.

DOCKET ENTRIES—Continued

Sept. 18, 1934. Citation issued returnable Oct. 17, 1934.
Sept. 29, 1934. Petition of defendants re general contents of record on appeal filed with acceptance of service thereon.

[fol. 9]

Oct. 2, 1934. Plaintiff's answer to defendant's petition re contents of record on appeal filed.
Oct. 3, 1934. Stipulation re contents of record on appeal and order approving same filed.
Oct. 3, 1934. Order (on defendants' petition of Sept. 29, 1934) directing that master's Exhibit 32 for identification shall not be included in the appeal record; exception noted to the plaintiff.

[fol. 10] IN UNITED STATES DISTRICT COURT FOR THE WESTERN DISTRICT OF PENNSYLVANIA

In Equity. No. 2295

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA,
Plaintiff,

v.

PITTSBURGH SAFETY GLASS COMPANY, Defendant

BILL OF COMPLAINT—Filed December 31, 1928

To the Honorable Judges of the District Court of the United States for the Western District of Pennsylvania:

The plaintiff, Triplex Safety Glass Company of North America, complaining of the defendant, alleges:

First. That the plaintiff, Triplex Safety Glass Company of North America, is a corporation of the State of Delaware and has its principal office in Clifton, in the State of New Jersey; that the defendant, Pittsburgh Safety Glass Company, is a corporation of the State of Delaware and has its principal office and regular and established place of business in the City of Pittsburgh, in the State of Pennsyl-

vania, within the Western Judicial District of Pennsylvania at which place and within which district, as well as elsewhere in the United States the acts hereinafter complained [fol. 11] of as infringements have been and are being done by said defendant.

Second. That this is a suit in equity arising under the Patent Laws of the United States, for infringement of Letters Patent of the United States No. 1,182,739.

Third. That on and prior to the fourteenth day of June, 1911, Edouard Benedictus, then a citizen of France, was within the meaning of the Statutes of the United States then in force, the first, sole, true and original inventor of certain new improvements in manufacture of strengthened glass, not known or used by others in this country and not patented or described in any printed publication in this or any foreign country before his invention or discovery thereof, or more than two years prior to his application for letters patent therefor, and no application for any foreign patent having been filed more than twelve months prior to the filing of the application for letters patent in this country, and which improvements had not been in public use or on sale in the United States for more than two years prior to his said application for letters patent therefor, and not abandoned to the public.

Fourth. That on the fourteenth day of June, 1911, the said Edouard Benedictus made and filed an application in writing to the Commissioner of Patents for the grant of letters patent upon the said invention or discovery of improvements in manufacture of strengthened glass, said application bearing No. 633,128; that on the ninth day of May, 1916, all the requirements of the Statutes of the United States then in force having been complied with, Letters Patent of the United States No. 1,182,739, for improvements in manufacture of strengthened glass, was duly [fol. 12] issued on the said application to said Edouard Benedictus; that said letters patent was issued in due form of law in the name of the United States of America under the seal of the United States Patent Office, signed by the Commissioner of Patents, duly recorded and delivered to the said Edouard Benedictus, and was so issued after due examination as to the novelty, patentability and utility of the inventions therein described and payment of the fees

required by law; and that the said letters patent granted to the said Edouard Benedictus, his heirs, legal representatives or assigns, for the full term of seventeen years from the date thereof, the full and exclusive right and liberty to make, use and sell the inventions set forth, described and claimed therein throughout the United States and territories thereof.

Fifth. That the plaintiff is the sole and exclusive owner of the entire right, title and interest in and to Letters Patent of the United States for manufacture of strengthened glass, No. 1,182,739, dated May 9, 1916, and granted to Edouard Benedictus, and is the exclusive owner of the entire right, title and interest in and to all damages and profits recoverable at law or in equity for any and every infringement of said letters patent and in and to all claims and demands for such damages and profits by virtue of certain instruments in writing duly executed and recorded in the United States Patent Office, as by the said instruments in writing or by duly certified copies thereof, ready in court to be produced by the plaintiff as your Honors shall direct, will more fully appear.

Sixth. That the said improvements in manufacture of strengthened glass shown, described and claimed in said Letters Patent of the United States, No. 1,182,739, have been and are of great practical use and benefit to the plain-
[fol. 13] tiff and to the public; that the plaintiff has invested and expended large sums of money and has been to great trouble and expense for the purpose of introducing the same into public use and making the same profitable to it and useful to the public; that said improvements have been favorably known throughout the United States; that the public has generally acknowledged and acquiesced in the value and utility of said improvements and has generally acknowledged and acquiesced in the rights secured to the plaintiff by the said letters patent; and that the plaintiff believes that it will realize and receive large gains and profits from the said improvements if it shall receive the equitable relief prayed for in this bill of complaint.

Seventh. That the plaintiff has given notice to the public that strengthened glass embodying the improvements shown, described and claimed in said Letters Patent of the United States, No. 1,182,739, is patented by affixing to

each piece of such glass made, sold and used by it since the issuance of said Letters Patent of the United States and embodying the said improvements the word "Patented" or a proper abbreviation thereof, together with the date of said letters patent; that the plaintiff has strictly complied with the requirements of Section 4900 of the Revised Statutes of the United States in such cases made and provided; that the plaintiff has notified the defendant in writing and otherwise that the improvements shown, described and claimed in said Letters Patent No. 1,182,739 are patented and that the defendant is violating the exclusive rights acquired by and secured to the plaintiff under said letters patent; and that the defendant is committing the infringing acts herein complained of with full knowledge of plaintiff's rights.

[fol. 14] Eighth. That at divers times between the date of granting of said Letters Patent No. 1,182,739 and of the filing of this bill of complaint and within six years prior to the filing of this bill of complaint, the defendant, well knowing the facts hereinbefore set forth, but contriving to injure the plaintiff and to deprive it of the profits and advantages which might and otherwise would accrue to it from said Letters Patent of the United States, No. 1,182,739, and from the several improvements therein described and claimed, has been and now is making and selling strengthened glass embodying the improvements therein described and claimed in said Letters Patent of the United States, No. 1,182,739; in the City of Pittsburgh, in the State of Pennsylvania, within the Western District of Pennsylvania, and elsewhere within the United States, all without any license or allowance of the plaintiff and against the will of the plaintiff and in violation of its exclusive rights under the said Letters Patent of the United States, No. 1,182,739; and that the defendant, as the plaintiff is informed and believes, intends and threatens to continue to make and sell strengthened glass embodying the improvements described and claimed in said Letters Patent of the United States No. 1,182,739, in the City of Pittsburgh, in the State of Pennsylvania, within the Western District of Pennsylvania, and elsewhere within the United States, without any license or allowance of the plaintiff and in defiance of the exclusive rights acquired by and secured to the plaintiff under said Letters Patent of the United

States, No. 1,182,739; that by reason thereof the plaintiff has been and is being deprived of great gains and profits which might and otherwise would have been obtained by it, but which have been and are now being received and enjoyed by the defendant by and through its said unlawful [fol. 15] acts and doings, to the great and irreparable loss and injury of the plaintiff; that said unlawful acts and doings of the defendant and its disregard and defiance of the exclusive rights of the plaintiff, as aforesaid, have the effect to and do encourage others to infringe said Letters Patent of the United States, No. 1,182,739, and to disregard the exclusive rights of the plaintiff thereunder; and that the plaintiff is unable to state how much strengthened glass embodying the improvements described and claimed in said Letters Patent of the United States, No. 1,182,739, the defendant has made or has caused to be made and sold, or caused to be sold, as aforesaid, but is informed and believes and therefore avers that the defendant has made and sold strengthened glass in the City of Pittsburgh, in the State of Pennsylvania, within the Western District of Pennsylvania, and elsewhere within the United States, in infringement of said Letters Patent of the United States, No. 1,182,739, and prays a discovery thereof.

Wherefore the plaintiff prays:

1. That the defendant be compelled to account for all strengthened glass embodying any of the improvements described and claimed in said Letters Patent of the United States No. 1,182,739, which it has manufactured or sold or caused to be manufactured or sold in the City of Pittsburgh, in the State of Pennsylvania, within the Western District of Pennsylvania, and elsewhere within the United States, in infringement of said Letters Patent of the United States, No. 1,182,739.

2. That the defendant be compelled to account for and pay to the plaintiff all profits, gains and savings by it acquired and the actual damages suffered by the plaintiff from the infringement by the defendant of said Letters Patent of the United States No. 1,182,739.

[fol. 16] 3. That the defendant and its officers, agents, servants, attorneys, employees, and each of them may be restrained from any further violation of the exclusive

rights of the plaintiff under and from infringement of said Letters Patent of the United States, No. 1,182,739.

4. That the defendant may be decreed to pay the costs of this suit.

5. The plaintiff further prays for a writ of injunction issuing from and under the seal of this Honorable Court perpetually enjoining and restraining the defendant and its officers, agents, servants, attorneys and employees from further making or selling or causing to be made or sold any strengthened glass embodying any of the improvements described and claimed in Letters Patent of the United States No. 1,182,739, in violation of the exclusive rights of the plaintiff hereunder and in infringement of said Letters Patent of the United States, No. 1,182,739.

6. And plaintiff further prays that a provisional or preliminary injunction be issued restraining the defendant from any further infri[illegible]t of said Letters Patent of the United States, No. [illegible]82,739.

7. And plaintiff further prays for a writ of subpœna ad respondendum issuing out of and under the seal of this Honorable Court directing the defendant and commanding it, on a day certain therein to be named, to appear and to answer this bill of complaint (but not under oath, an answer under oath being hereby expressly waived) and to abide by and perform such orders and decrees as to this Court shall seem meet and may be required by the principles of equity and good conscience.

[fol. 17] 8. And for such other and further relief as the circumstances of the case may require.

Triplex Safety Glass Company of North America,
by Amory L. Haskell, President.

Attest: Starr Cooper, Secretary. William B. Greeley, Drury W. Cooper, New York, of Counsel for Plaintiff. (Seal.) Brown & Critchlow, 1526 Farmers Bank Bldg., Pittsburgh, Pa., Solicitors for Plaintiff.

Duly sworn to by Amory L. Haskell. Jurat omitted in printing.

[fol. 18] IN UNITED STATES DISTRICT COURT

DEFENDANT'S ANSWER—Filed March 4, 1929

I. Defendant admits the corporate existence of the plaintiff as averred in paragraph first of the bill of complaint and it admits itself to be a corporation of the State of Delaware, having its principal office and regular and established place of business at Pittsburgh, Pennsylvania, but it denies that it has committed any act of infringement within the Western District of Pennsylvania or elsewhere.

II. With respect to the averments of paragraphs third and fourth of the bill of complaint, defendant admits the issue of letters patent therein named, No. 1,182,739, to Edouard Benedictus, but it denies that the said letters patent were lawfully issued, as well as that there was thereby granted to the said Edouard Benedictus, his heirs, [fol. 19] legal representatives or assigns, any exclusive right or liberty, and it denies all the other averments contained in said paragraphs third and fourth.

III. As to the averments of paragraph fifth of the bill of complaint, defendant is without knowledge.

IV. As to the averments of paragraph sixth of the bill of complaint, defendant is without knowledge.

V. Whether or not the plaintiff has marked strengthened glass manufactured and sold by it, and alleged to embody the alleged improvements of the said letters patent, as "patented," as averred in paragraph seventh of the bill of complaint, defendant is without knowledge. Defendant admits that prior to the filing of the bill of complaint it was notified of the said letters patent and of its alleged infringement thereof, but it denies that it has committed any infringing acts either before or after such notice.

VI. Defendant denies that at any time it has made or sold, is now making or selling, or intends to make or sell any strengthened glass embodying any of the alleged improvements purporting to be described and claimed in the said letters patent, within the Western District of Pennsylvania or elsewhere, and it denies each and all of the averments of paragraph eighth of the bill of complaint.

VII. Defendant denies that Edouard Benedictus, in said bill of complaint named, was the true, original and first inventor of any of the alleged improvements purporting to be set forth in the said Letters Patent No. 1,182,739, or of any material or substantial part thereof; on the contrary, defendant avers the fact to be, that prior to the pretended invention thereof by the said Bénedictus, and for more than two years prior to the date of his application for the said [fol. 20] letters patent, the said alleged improvements, in all material and substantial parts, had been known and used in this country, and had been patented and described in printed publications in this and foreign countries, as is disclosed in and by the following:

United States Letters Patent

No. 346,864, dated August 3d, 1886, to Read.
No. 610,861, dated September 13th, 1898, to Goodwin.
No. 765,275, dated July 19, 1904, to Fields.
No. 830,398, dated September 4th, 1906, to Wood.

English Letters Patent

No. 3250 of 1873, to Holyaoke.
No. 5080 of 1884, to Cunliffe.
No. 15303 of 1884, to Fulticks.
No. 17126 of 1900, to Hofer.
No. 9972 of 1905, to Wood.

French Letters Patent

No. 356,076 of 1905, to Wood.
No. 404,795, of 1909, to Soulier.

VIII. Defendant, in further denial of invention by the said Benedictus of any of the said alleged improvements, avers that in view of the state of the art as it existed at and prior to his application for the said letters patent, and at and prior to his pretended invention thereof, the said alleged improvements did not, nor did any of them, constitute, contain or embody any patentable subject matter. In proof of such prior state of the art, defendant will refer, among other matters, to the prior letters patent listed in the last preceding paragraph.

IX. Defendant, further answering, avers that the description or specification filed by the said Benedictus in the [fol. 21] Patent Office, in making his application for the said letters patent, was defective and misleading and did not set forth the manner and process of making, constructing, compounding and using his said alleged improvements in sufficiently full, clear and exact terms as to enable a person skilled in the art to which they appertain to make, construct, compound and use the same.

XI. Defendant, further answering, avers that for the purpose of deceiving the public, the description or specification filed by the said Benedictus in the Patent Office, in making his application for the said letters patent, was made to contain less than the whole truth relative to his pretended invention or discovery.

XII. Defendant denies the equity of the said bill of complaint; it denies that the plaintiff has any right to any injunction, preliminary or perpetual, or to any accounting of damages or profits, or to the costs of this suit, or to any relief whatever against this defendant; and it further denies that the said bill of complaint states any good cause of action. All of which matters and things defendant is ready to prove and maintain as this Honorable Court shall direct, and it humbly prays that it be hence dismissed with its reasonable costs and charges in this behalf most wrongfully sustained.

Christy & Christy, Solicitors for Defendant. James C. Bradley, C. H. Biesterfeld, Marshall A. Christy, Of Counsel.

[fol. 22] IN UNITED STATES DISTRICT COURT

STIPULATION AS TO CHANGE OF NAME—Filed December 9, 1929

It is hereby stipulated by and between the solicitors for the respective parties to the above-entitled suit that the name of the defendant was changed pursuant to provisions of the laws of the State of Delaware from "Pittsburgh Safety Glass Company" to "Duplate Corporation" subsequent to the filing of the bill of complaint herein, and may be changed of record in this case to Duplate Corporation,

and that an order to the foregoing effect may be entered without further notice to either party.

Brown & Critchlow, Solicitors for Plaintiff. Marshall A. Christy, Solicitor for Defendant.

ORDER

And now, this ninth day of December, 1929, it is so ordered.

F. P. Schoonmaker, United States District Judge.

[fol. 23] IN UNITED STATES DISTRICT COURT

[Title omitted]

ORDER AS TO SUPPLEMENTAL BILL OF COMPLAINT—Filed October 7, 1931

This case came on to be heard on plaintiff's motion for leave to file the attached supplemental bill, and, counsel for defendants not objecting thereto, it is

Ordered that said supplemental bill be filed.

F. P. Schoonmaker, United States District Judge.

October 7, 1931.

Counsel for the defendants' Pittsburgh Plate Glass Company and Duplate Corporation does not object to the entry of the attached order granting leave to Triplex Safety Glass Company of North America to file a supplemental bill against Duplate Corporation and Pittsburgh Plate Glass Company in the cause now pending before this Court and marked in Equity as No. 2295.

Dated October 6, 1931.

Marshall A. Christy, Appearing Specially Only for Pittsburgh Plate Glass Company.

[fol. 24] IN UNITED STATES DISTRICT COURT

SUPPLEMENTAL BILL OF COMPLAINT—Filed October 7, 1931

To the Honorable the Judges of the District Court of the United States for the Western District of Pennsylvania:

The Triplex Safety Glass Company of North America, a corporation incorporated under the laws of the State of Delaware, having its principal office in Clifton, in the State of New Jersey, the plaintiff in the original bill of complaint filed in this cause against Duplate Corporation, by way of supplement to said original bill of complaint, with leave of Court first had and obtained, files this its supplemental bill of complaint in this cause against Pittsburgh Plate Glass Company, and alleges as follows:

First. That Pittsburgh Plate Glass Company is a corporation of the State of Pennsylvania, having its principal office and place of business in the City of Pittsburgh, in the State of Pennsylvania and is an inhabitant and resident of the Western District of Pennsylvania.

Second. On information and belief that Dupont Viscaloid Company is a corporation of the State of Delaware, having its principal office in the City of Wilmington, in the State of Delaware and is not an inhabitant or resident of the Western District of Pennsylvania and therefore is not made a party hereto because it is not within the jurisdiction of this Honorable Court.

Third. That Duplate Corporation is a corporation of Delaware having an office and a regular and established place of business in the City of Pittsburgh, in the State of [fol. 25] Pennsylvania, within the Western District of Pennsylvania and is made a party hereto because it is the defendant named in the original bill, but no other or further relief is prayed for herein against Duplate Corporation than the relief prayed against it in said original bill of complaint.

Fourth. That this is a supplemental suit in equity arising under the Patent Laws of the United States for the infringement of Letters Patent of the United States No.

1,182,739, dated May 9, 1916 and granted to Edouard Benedictus.

Fifth. That heretofore and on or about the thirty-first day of December, 1928, plaintiff filed its original bill of complaint in this Honorable Court against the defendant, Duplate Corporation, in which original bill of complaint plaintiff charged infringement of claim 12 of said Letters Patent of the United States No. 1,182,739 and prayed for an injunction and accounting for damages and profits, all of which is more particularly set forth in said original bill of complaint filed in the office of the clerk of this court on the thirty-first day of December, 1928, to which the plaintiff begs leave to refer with the same effect as if the same were set forth here in full; that defendant, Duplate Corporation, duly filed its answer in this Court on March 4, 1929; that the issues thus joined by the original bill of complaint and defendant's answer thereto, came on to be heard before the Honorable F. P. Schoonmaker, United States District Judge of this court; that an interlocutory decree was entered therein on December 9, 1929, adjudging said United States Letters Patent No. 1,182,739 valid and infringed by the defendant, Duplate Corporation, and enjoining said defendant, Duplate Corporation, from further infringement of said letters patent and ordering an accounting before G. Dixon Shrum, Esq., as Special Master, to determine the [fol. 26] damages and profits arising out of the defendant, Duplate Corporation's, infringement; that defendant, Duplate Corporation, appealed from said decree to the Circuit Court of Appeals for the Third Circuit; that said appeal was heard and that said decree was in all respects affirmed by the said Circuit Court of Appeals for the Third Circuit; that thereafter the hearings on the accounting before the said G. Dixon Shrum, Esq., were commenced on May 11, 1931, continued from time to time and are still pending.

Sixth. Plaintiff further avers that at such hearings before said Special Master, plaintiff first learned the following facts which were unknown and could not by reasonable diligence have been known to it or to any of its officers or directors before such hearings:

On or about December 14, 1927, said Pittsburgh Plate Glass Company, and said Dupont Viscaloid Company, en-

tered into a written agreement, the pertinent parts of which are hereinafter summarized.

The agreement recites that the parties thereto (Pittsburgh Plate Glass Company and Dupont Viscaloid Company) "desire to enter into a joint enterprise having for its object the manufacture and sale of non-splintering glass"; that the parties will cause to be incorporated a Delaware corporation referred to in said agreement as "Glass Company" which shall have a $1,000,000 authorized capital stock; that each of the parties will subscribe $100,000 of the authorized issue and also will subscribe for the balance of said capital stock when and as it may be required; that Pittsburgh Plate Glass Company and Dupont Viscaloid Company would always vote their respective stockholdings in such manner that three of the six members of the board of directors of the proposed Glass Company would be representatives of Pittsburgh Plate Glass Com- [fol. 27] pany and the remaining three would be representatives of Dupont Viscaloid Company; that the board of directors of the proposed Glass Company would vote at meetings of such board so that the president and general manager of the Glass Company should always be representatives of the Pittsburgh Plate Glass Company and that the chairman of the board of directors of the Glass Company should always be a representative of the Dupont Viscaloid Company. The agreement also contains various provisions relating to the lease or acquisition of a plant site, the erection of a plant, the number of directors and the manner of electing them; that the Glass Company shall have the non-exclusive right to use patents, formulæ, processes and inventions owned by Dupont Viscaloid Company and/or Pittsburgh Plate Glass Company free from the payment of any royalty; that upon the acquisition of any United States or foreign patents by either Dupont Viscaloid Company or Pittsburgh Plate Glass Company, the proposed corporation shall be notified and shall have certain rights to acquire such patents, or acquire rights thereunder; that the certificate of incorporation shall be acceptable to counsel for the Dupont Viscaloid Company and counsel for the Pittsburgh Plate Glass Company; that the Dupont Viscaloid Company and Pittsburgh Plate Glass Company agree not to sell, assign or hypothecate their respective stockholdings in the proposed company without first offering them to each other; that to the end that the Pittsburgh Plate

Glass Company and the Dupont Viscaloid Company shall have and enjoy the maximum benefits and profits from the joint undertaking, the proposed company shall purchase from the Dupont Viscaloid Company all pyroxylin plastics and from the Pittsburgh Plate Glass Company all polished plate glass and/or window glass and from either or both [fol. 28] all other basic materials which shall be needed or used in the business of the proposed company.

Seventh. Plaintiff further avers that on December 28, 1927, pursuant to said agreement, Pittsburgh Plate Glass Company, acting in conjunction with Dupont Viscaloid Company caused to be organized under the laws of the State of Delaware, Pittsburgh Safety Glass Company, the name of which was subsequently changed to Duplate Corporation, constituting the joint enterprise provided for in said agreement of December 14, 1927.

Eighth. That the board of directors of said joint enterprise, now known as Duplate Corporation, consisted of six members, three of whom were members of the board of directors of Pittsburgh Plate Glass Company and the remaining three were members of the board of directors of Dupont Viscaloid Company; that the president of said joint enterprise was the president of Pittsburgh Plate Glass Company and the chairman of the board of directors of said joint enterprise was the president of Dupont Viscaloid Company.

That during the first few months of the existence of said joint enterprise, now known as Duplate Corporation, the printed order forms of Pittsburgh Plate Glass Company were used as the printed order forms of Duplate Corporation; that the printed records and forms of Pittsburgh Plate Glass Company designated said joint enterprise, now known as Duplate Corporation, as "The Laminated Glass Department" of Pittsburgh Plate Glass Company; that said joint enterprise, now known as Duplate Corporation, used as its general offices the general offices of Pittsburgh Plate Glass Company without the payment of any rental therefor; that the bookkeepers employed and paid by Pitts- [fol. 29] burgh Plate Glass Company made entries in and in other respects kept the books of said joint enterprise, now known as Duplate Corporation; that for the period of more than a year after the said joint enterprise, now known

as Duplate Corporation, commenced business, the said joint enterprise occupied a part of one of the factories of Pittsburgh Plate Glass Company, free from the payment of any rental therefor; that the Pittsburgh Plate Glass Company granted preferential prices for plate glass to said joint enterprise, now known as Duplate Corporation, said preferential prices being substantially under the market price charged other and unrelated customers; that the officers and employees of Pittsburgh Plate Glass Company and particularly those in charge of the sales department of Pittsburgh Plate Glass Company, determined and established the prices to be charged by said joint enterprise, now known as Duplate Corporation, for its product; that the Pittsburgh Plate Glass Company, under the nominal title of "Sales Agent" sold the product of said joint enterprise, now known as Duplate Corporation, to the consumers thereof; that the joint enterprise, now known as Duplate Corporation, paid a selling commission to Pittsburgh Plate Glass Company and that the amount of that selling commission was the subject of an agreement, verbal or otherwise, between the Pittsburgh Plate Glass Company and Dupont Viscaloid Company; that the prices charged the consumers of the strengthened glass manufactured and sold by said joint enterprise, now known as Duplate Corporation, were not only subject to secret rebate agreements between Pittsburgh Plate Glass Company and some of said consumers, but the Pittsburgh Plate Glass Company instituted a cut-price policy and in other respects so negligently and recklessly conducted the business of said joint enter-
[fol. 30] prise, now known as Duplate Corporation, that not only the original investment of $1,000,000 in said joint enterprise, but also the profits earned by said joint enterprise, now known as Duplate Corporation, have been wasted and dissipated with the result that on the face of the accounting heretofore filed by the said Duplate Corporation with the Special Master appointed herein, the said joint enterprise, now known as Duplate Corporation, is now insolvent; that in or about February 1931 Pittsburgh Plate Glass Company, either through a stock purchase from said Dupont Viscaloid Company, or otherwise, acquired all of the issued capital stock and through such stock ownership is now the owner of all the assets of said joint enterprise, now known as Duplate Corporation.

Ninth. This plaintiff further avers that Pittsburgh Plate Glass Company has since on or about December 28, 1927, caused to be carried on the manufacture of the strengthened glass complained of in the original bill of complaint filed herein and decreed by this Court to be an infringement of said United States Letters Patent No. 1,182,739, and that Pittsburgh Plate Glass Company instigated, initiated and contributed to the said infringing manufacture of said strengthened glass for its own private profit, benefit and advantage and to that end caused to be incorporated the joint enterprise, now known as the Duplate Corporation, in an attempt to carry on said infringing manufacture, or cause the same to be carried on without subjecting itself to liability therefor; that at all times since December 28, 1927, said Pittsburgh Plate Glass Company, as one of the parties to the joint enterprise, now known as Duplate Corporation, had and now has the power to control, and did and now does control and operate said joint enterprise, now known as the Duplate Corporation.

[fol. 31] Tenth. This plaintiff further avers that the said joint enterprise, now known as Duplate Corporation, is not able to and/or will not be able to respond or pay any damages or profits which may be awarded against it and that the decree heretofore entered in the original suit against the Duplate Corporation, awarding the plaintiff a perpetual injunction and profits and damages, is not and will not be effective unless this Court also directs that a perpetual injunction issue against the said defendant, Pittsburgh Plate Glass Company and unless this court also directs that said Pittsburgh Plate Glass Company is responsible for and must pay to this plaintiff the profits which have accrued to the said joint enterprise, Duplate Corporation, from the infringing of said Letters Patent of the United States, No. 1,182,739, as well as the damages suffered by the plaintiff by reason of the aforesaid infringing manufacture by the said joint enterprise, now known as Duplate Corporation; that this plaintiff, unless the relief hereinafter prayed for is granted will not be afforded a complete and adequate remedy and will not be protected in its exclusive rights and privileges in, to and under said Letters Patent of the United States No. 1,182,739, as decreed by this Court in the original suit herein.

Wherefore, plaintiff prays:

1. That a writ of subpœna ad respondendum issue out of and under the seal of this Honorable Court, directed to the defendant, Pittsburgh Plate Glass Company, and commanding it on a day certain therein to be named, to appear and answer this bill of complaint (but not under oath, an answer under oath being hereby expressly waived) and to abide by and perform such orders and decrees as to this Court shall seem meet and may be required by the principles of equity and good conscience.

[fol. 32] 2. That the defendant, Pittsburgh Plate Glass Company be adjudged responsible for the acts and doings of Duplate Corporation; and be compelled to account for and pay to the plaintiff all profits, gains and savings made by said Duplate Corporation and itself and the actual damages suffered by the plaintiff from the infringement by Duplate Corporation and Pittsburgh Plate Glass Company, of said Letters Patent of the United States No. 1,182,739.

3. That a writ of injunction issue from and under the seal of this Honorable Court perpetually enjoining and restraining the defendant, Pittsburgh Plate Glass Company, and each of its respective officers, agents, servants, attorneys and employees, from further making, selling or using, or causing to be made sold or used, or assisting others and particularly Duplate Corporation from making, selling or using, any strengthened glass embodying any of the improvements described and claimed in Letters Patent of the United States No. 1,182,739, in violation of the exclusive rights of the plaintiff thereunder and in infringement of said Letters Patent of the United States No. 1,182,739, as heretofore decreed by this Honorable Court.

4. That the plaintiff may have the benefit of the said original suit heretofore brought against the Duplate Corporation and may also have the benefit of all proceedings heretofore had therein against the defendant, Pittsburgh Plate Glass Company; and may have the same relief against the said Pittsburgh Plate Glass Company as plaintiff had or could have had against the said Duplate Corporation.

5. That the said Pittsburgh Plate Glass Company be decreed to pay the costs of this supplemental suit, as well as the costs of the original suit.

[fol. 33] 6. That this plaintiff have such other and further relief as the circumstances of the case may require.

Triplex Safety Glass Company of North America, by Sydney W. Caulfield, Vice-President. Brown & Critchlow, Attorneys for Plaintiff, 1526 Farmers Bank Building, Pittsburgh, Pennsylvania. William B. Greeley, Drury W. Cooper, Counsel.

Duly sworn to by Sydney W. Caulfield. Jurat omitted in printing.

[fol. 34] IN UNITED STATES DISTRICT COURT

ANSWER OF PITTSBURGH PLATE GLASS COMPANY—Filed October 21, 1931

The answer of Pittsburgh Plate Glass Company, joined herein as party defendant by supplemental bill of complaint, to the said supplemental bill of Triplex Safety Glass Company of North America, plaintiff.

I. Defendant admits the corporate existence and the respective domiciles of the respective corporations named in paragraphs first, second and third of said supplemental bill of complaint.

II. The averments of paragraph fifth of the said supplemental bill are admitted.

III. With respect to the averments of paragraph sixth of the said supplemental bill, this defendant admits that on or about December 14, 1927, it entered into a certain written agreement with Dupont Viscoloid Company, named in said supplemental bill, but denying the averments of the said paragraph sixth as therein made, this defendant refers to the said written agreement bearing date December 14, 1927, ready in court to be produced, as setting forth each and all of the provisions thereof.

IV. Defendant admits the averments of paragraph seventh of said supplemental bill.

V. Answering the averments of paragraphs eighth and ninth of the said supplemental bill, this defendant denies the same, excepting only such as may be comprehended within the following statement, which this defendant avers to be correct: As admitted in the last above paragraph IV, this defendant jointly with the said Dupont Viscoloid Company in said bill of complaint mentioned organized [fol. 35] and effected incorporation of the said Duplate Corporation in said supplemental bill mentioned, under the original name of Pittsburgh Safety Glass Company. Of the capital stock of said corporation this defendant owned one-half, and the said Dupont Viscoloid Company owned the other half. Such stock ownership continued until on or about January 1, 1931, at which time this defendant purchased the entire stock ownership of the said Dupont Viscoloid Company, and since said last mentioned date this defendant has been the owner of the entire capital stock of said Duplate Corporation. Prior to January 1, 1931, the operations of the said Duplate Corporation were controlled jointly by this defendant and the said Dupont Viscoloid Company. Since January 1, 1931, this defendant has been and is now in sole control of the operations of said Duplate Corporation. This defendant has not manufactured or used any so-called strengthened glass such as is mentioned in the said supplemental bill, but it has acted as selling agent and in that capacity only has sold the product of the said Duplate Corporation, receiving for its services a commission of a small percentage of the actual selling price.

This defendant denies each and every averment, in said bill of complaint contained or implied, as to any want of good faith, of concealment of relation, or desire or intent to avoid responsibility, in and about the organization and incorporation of the said Duplate Corporation, and in carrying on the business of the said Duplate Corporation in the manufacture and sale of its product, and it further denies that the business of the said Duplate Corporation was ever carried on as a branch or department of this defendant, or otherwise than as a distinct and separate business of the said Duplate Corporation, as in fact it was. On the contrary, this defendant avers the fact to be, that [fol. 36] the said Duplate Corporation was originally organized and incorporated, and has at all times since con-

tinued in business, in good faith and for valid and lawful commercial reasons. Defendant further denies that, except as hereinabove stated, it has manufactured, sold or used, or instigated, initiated, or contributed to any manufacture, sale or use, or caused to be carried on any manufacture, sale, or use, of any strengthened glass such as is described and claimed in Letters Patent No. 1,182,739, mentioned in said supplemental bill. And defendant further denies that at any time during the existence and operation of said Duplate Corporation the facts in this paragraph hereinbefore stated were unknown to the said plaintiff, as well as that they could not have been discovered by it by reasonable diligence.

VI. Defendant denies each and all of the allegations of fact and conclusions set forth in paragraph tenth of said supplemental bill.

This defendant denies the equity of the said bill of complaint; it denies that the plaintiff has any right to any injunction, preliminary or perpetual, or to any accounting of damages or profits or to the costs of this suit or to any relief whatever against this defendant; and it further denies that the said bill of complaint states any good cause of action.

Pittsburgh Plate Glass Company, by Christy, Christy & Wharton, Solicitors. Marshall A. Christy, James C. Bradley, of Counsel.

Pittsburgh, Pennsylvania, October 20, 1931.

[fol. 37] In United States District Court for the Western District of Pennsylvania

In Equity. No. 2295

Triplex Safety Glass Company of North America, Plaintiff,

v.

Pittsburgh Safety Glass Company, Defendant

Present: Honorable Frederic P. Schoonmaker, United States District Judge.

Interlocutory Decree—Filed December 9, 1929

This suit came on at this term of court and was tried on final hearing and argued and submitted by counsel for both

parties; and thereupon, upon consideration and determination thereof by this Court, it is

Ordered, Adjudged and Decreed as follows:

1. That letters patent named in the bill of complaint, to wit, Letters Patent of the United States No. 1,182,739, granted on May 9, 1916, on the invention of and to Edouard Benedictus for Manufacture of Strengthened Glass, is good and valid in law as to claim numbered 12 thereof and that title to said letters patent is vested in plaintiff, Triplex Safety Glass Company of North America.

2. That the defendant, Pittsburgh Safety Glass Company, has infringed upon the said Letters Patent of the [fol. 38] United States No. 1,182,739 as to claim numbered 12 thereof and has violated the exclusive rights of the plaintiff thereunder.

3. That a writ of injunction, in accordance with the prayer of the bill of complaint, directed to the defendant, Pittsburgh Safety Glass Company, be issued out of and under the seal of this Court perpetually enjoining and restraining defendant, Pittsburgh Safety Glass Company, its officers, agents, servants, attorneys and employees, from further making or selling or causing to be made or sold strengthened glass embodying the invention set forth and claimed in claim numbered 12 of said Letters Patent of the United States No. 1,182,739.

4. That the plaintiff recover from the defendant the profits, gains and advantages which the said defendant has received or made or which may have arisen or accrued to it by the manufacture and sale of strengthened glass in infringement upon and violation of the invention of claim numbered 12 of said Letters Patent of the United States No. 1,182,739.

5. That the plaintiff recover from the defendant the damages resulting to plaintiff from the infringement by the defendant of claim numbered 12 of said Letters Patent of the United States No. 1,182,739.

6. That this case be referred to G. Dixon Shrum, of Pittsburgh, Pa., as a Special Master of this court, who is hereby appointed to ascertain, take, state and report to the Court an account of the quantity of strengthened glass described and claimed in claim numbered 12 of said Letters

Patent of the United States No. 1,182,739 made, used or sold by defendant and also the gains, profits and advantages which the defendant has received or which have arisen [fol. 39] and accrued to it from infringement upon the said exclusive rights of plaintiff under said letters patent as to claim numbered 12 thereof, and also the damages which the plaintiff has suffered because of defendant's said infringement upon claim numbered 12 of said Letters Patent of the United States No. 1,182,739.

7. That the plaintiff on such accounting shall have the right to cause the examination of the officers, servants, agents and employees of defendant and also to examine other witnesses and to cause the production and examination of the books, vouchers, records and documents of the defendant and to have the necessary process of the Court to compel such attendance and production of books, vouchers, records and documents of defendant before the Master at such times and places as the Master shall from time to time direct.

8. That the plaintiff shall recover from the defendant the costs expended by it in this court and that it shall have judgment and execution of this court against the defendant for said costs.

F. P. Schoonmaker, United States District Judge.

[fol. 40] In United States District Court for the Western District of Pennsylvania

In Equity. No. 2295

Triplex Safety Glass Company of North America

v.

Duplate Corporation and Pittsburgh Plate Glass Company

Interlocutory Decree Upon Supplemental Bill and Answer—Filed December 5, 1931

And Now, to wit, December 5, 1931, this cause having come on to be heard upon the supplemental bill against the Pittsburgh Plate Glass Company and the answer of

Pittsburgh Plate Glass Company thereto, it is, by consent, Ordered, Adjudged and Decreed as follows:

1. That the said supplemental defendant, Pittsburgh Plate Glass Company, has jointly with the above-named defendant, Duplate Corporation, and by its own acts as well, infringed upon the Letters Patent of the United States here in suit, No. 1,182,739, as to claim 12 thereof, heretofore adjudged to be valid by this Court, and has violated the exclusive rights of the plaintiff thereunder.

2. That a writ of injunction, in accordance with the prayer of the said supplemental bill of complaint, be issued out of and under the seal of this Court perpetually enjoining and restraining the said defendant, Pittsburgh Plate Glass Company, and each of its respective officers, agents, [fol. 41] servants, attorneys and employees from further making, selling or using, or causing to be made, sold or used, or assisting others, and particularly said Duplate Corporation, in making, selling or using any strengthened glass involving the invention set forth in claim 12 of said Letters Patent of the United States No. 1,182,739, in violation of the exclusive rights of the plaintiff thereunder.

3. That the plaintiff recover from said supplemental defendant, Pittsburgh Plate Glass Company, the profits, gains and advantages which the said supplemental defendant has received or made or which have accrued to it from its said infringement of the said letters patent, together with the damages suffered by the said plaintiff from such infringement, and that with respect to any and all recoveries adjudged against the said Duplate Corporation by way of profits, damages, costs or otherwise, the said supplemental defendant Pittsburgh Plate Glass Company and the said Duplate Corporation shall be jointly and severally liable therefor.

4. That the Special Master heretofore appointed by this Court, G. Dixon Shrum, Esquire, of Pittsburgh, Pennsylvania, shall in the accounting proceedings now pending before him ascertain, take, state and report to this Court an account of the quantity of strengthened glass described and claimed in claim 12 of said Letters Patent of the United States No. 1,182,739, made, used or sold by the defendant, Pittsburgh Plate Glass Company, and also the gains, profits and advantages which the defendant, Pittsburgh Plate

Glass Company, has received or which have accrued to it from said infringement upon the exclusive rights of plaintiff under claim 12 of said letters patent, and also the damages which the plaintiff has suffered because of the said [fol. 42] supplemental defendant's infringement upon claim 12 of said Letters Patent of the United States No. 1,182,739.

5. That the plaintiff on such accounting shall have the right to cause the examination of the officers, servants, agents and employes of Pittsburgh Plate Glass Company and also to examine other witnesses and to cause the production and examination of the books, vouchers, records and documents of the defendant, Pittsburgh Plate Glass Company, and shall have the necessary process of the Court to compel such attendance and production of books, vouchers, records and documents of said defendant, Pittsburgh Plate Glass Company, before the Master at such times and places as the Master shall from time to time direct.

6. That the said supplemental defendant, Pittsburgh Plate Glass Company, shall pay the costs arising under said supplemental bill and answer and shall also be jointly and severally liable with said Duplate Corporation for the costs heretofore decreed against said Duplate Corporation.

F. P. Schoonmaker, United States District Judge.

The foregoing decree is consented to.

Marshall A. Christy, Solicitors for Defendant, Pittsburgh Plate Glass Company. Brown & Critchlow, Solicitors for Plaintiff, Triplex Safety Glass Company of North America.

[fol. 43] IN UNITED STATES DISTRICT COURT

[Title omitted]

RELEASE OF BOND—Filed December 16, 1931

In consideration of the assumption by Pittsburgh Plate Glass Company of all liability which may be adjudged against defendant, Duplate Corporation in this case, the plaintiff, Triplex Safety Glass Company of North America, hereby releases Maryland Casualty Company, surety, from all obligations assumed by it by the bond filed in this case

on December 10, 1929, and consents that an order may be entered cancelling the obligation of said surety.

December 15, 1931.

Marshall A. Christy, Solicitors for Defendant. William B. Greeley, Counsel for Plaintiff.

In United States District Court

Order Discharging Surety on Bond—Filed December 16, 1931

And Now, to wit, December 16, 1931, on reading the attached consent of the plaintiff to the release of Maryland Casualty Company, surety on the bond approved in this case on December 10, 1929, it is Ordered that the said surety, Maryland Casualty Company, be and hereby is released and discharged from all obligations under the said bond.

F. P. Schoonmaker, United States Judge.

[fol. 44] In United States District Court for the Western District of Pennsylvania

In Equity. No. 2295

Triplex Safety Glass Company of North America, Plaintiff,

v.

Duplate Corporation, Defendant

Accounting Proceeding Before the Master

Pittsburgh, Pa., July 28, 1930.

The parties met at the office of Brown & Critchlow, solicitors for plaintiff, at 1526 Farmers Bank Building, on the above date at 9 o'clock Eastern Standard Time, pursuant to notice.

Present: The Master, G. Dixon Shrum, Esq.; Jo. Baily Brown, Esq., for plaintiff; Marshall A. Christy, Esq., for defendant.

Mr. Brown presented to the Master a notice with service acknowledged thereon by solicitors for defendant of the motion for an order requiring defendant to file an account. Mr. Christy stated that he had no objection to the entry of the order, except that he wanted more time and asked that the return day be fixed as September 15th. This was accepted by the Master, and not objected to by solicitors for plaintiff, and thereupon the Master entered the following order:

[fol. 45] ORDER FOR DEFENDANT TO APPEAR AND FILE STATEMENT OF ACCOUNT, ETC.

To Duplate Corporation (formerly Pittsburgh Safety Glass Company) Defendant:

Pursuant to the interlocutory decree entered in the above case on December 9, 1929, you are hereby directed to appear before me at the office of Brown & Critchlow, 1526 Farmers Bank Building, on the Fifteenth day of September, 1930, at Nine O'clock in the morning, Eastern Standard Time, and then and there to bring in and file an account certified by the oath or oaths of such of your officers or agents as shall have the most certain and full knowledge of the matter, setting forth with regard to all strengthened glass embodying the invention described and claimed in Claim 12 of U. S. Patent No. 1,182,739, the following:

1. The total amount of such infringing glass manufactured, sold, or used by or for you down to the time of filing of said account; and

2. In debit and credit form all gains, profits, and advantages which you have derived, received or made by reason of the said manufacture, sale or use.

And it is further ordered that all books, papers, vouchers, and other documents relating to the matter at issue, and particularly those in which were entered any data concerning the cost of manufacture, extent of sale, or use of such glass need not be produced at the time and place herein specified, but shall be kept intact by you and remain in your possession subject to further order. Adjourned subject to call.

[fol. 46] Pittsburgh, Pa., September 22, 1930.

The parties met at the office of Brown & Critchlow, 1526 Farmers Bank Building, at nine o'clock Eastern Standard Time, pursuant to call of the Master.

Present: The Master, G. Dixon Shrum, Esq.; Jo. Baily Brown, Esq., for plaintiff; James C. Bradley, Esq., for defendant.

This meeting was held in place of the one previously ordered for September 15, by agreement of counsel and pursuant to informal direction of the Master.

Mr. Bradley produced a statement of account on behalf of the defendant as called for by the Master's order at the meeting of July 28, 1930, which was offered as defendant's statement of account and received and so marked by the Master.

A copy of this account was at the same time served on counsel for plaintiff.

Mr. Brown moved the Master for an adjournment to a later date, subject to call of the Master, so that plaintiff's accountants and attorneys may have an opportunity to examine this account to decide upon cross-examination or other steps that may be deemed advisable by them after they have had an opportunity to study it.

Mr. Bradley stated that he had no objection to such adjournment and the Master thereupon so ordered, stating that he would give the parties ample notice of the next meeting and of the witnesses and/or books, papers, etc., if any, to be produced at that time by the defendant for examination by the plaintiff.

Thereupon the meeting was adjourned.

[fol. 47] [Title omitted]

Pittsburgh, Pa., October 15, 1930.

The parties met at the office of Pittsburgh Plate Glass Company, 2200 Grant Building, at eleven o'clock Eastern Standard Time, pursuant to call of the Master.

Present: The Master, G. Dixon Shrum, Esq.; Ambrose L. O'Shea, Esq., for plaintiff; James C. Bradley, Esq., for defendant.

This meeting is held pursuant to agreement between counsel and with the consent of the Master.

STIPULATION AS TO CHECKING OF ACCOUNT, ETC.

It is stipulated that the plaintiff shall be given the opportunity of checking the account heretofore filed by the defendant against the books of the defendant corporation, and file in the case of a report of such check up, and for that purpose the firm of Lybrand, Ross Brothers & Montgomery, a firm of certified public accountants are appointed for general supervision of such check up.

It is further stipulated that the expense of this check up shall be borne in equal shares by the plaintiff and defendant, provided, that the defendant's share of this expense shall not exceed $1000. The firm of Lybrand, Ross Brothers & Montgomery shall give instructions to the [fol. 48] subordinates who shall be employed on the check up and who shall be furnished by the parties hereto as they may deem necessary for the proper checking up of the account. This stipulation, however, is entered into without prejudice to the rights of either party hereto to further examination of the books if they so see fit.

It is further understood that the parties hereto reserve all rights to objections as to the materiality, competency or relevancy of the report to be filed as a result of this check up.

Thereupon the meeting was adjourned subject to the call of the Master for further hearings.

Pittsburgh, Pa., April 17, 1931.

The parties met at 1518 Farmers Bank Building, Pittsburgh, Pennsylvania, at ten o'clock Eastern Standard Time, pursuant to the following notice:

"NOTICE OF ACCOUNTING PROCEEDINGS BEFORE G. DIXON SHRUM, SPECIAL MASTER

Pittsburgh, Pa., April 13, 1931.

To Marshall A. Christy, Esq., Solicitor for Defendant. Jo. Baily Brown, Esq., Solicitor for Plaintiff. William F. Marsh, Resident Partner Lybrand, Ross Bros. & Montgomery Auditors and Accountants.

GENTLEMEN:

Please take notice that at my office, 1508 Law & Finance Building, Pittsburgh, Pennsylvania, a meeting of Counsel [fol. 49] is called for 10:00 A. M., Friday, April 17th, 1931 in the above entitled case, at which time the plaintiff will be called upon for its report of the check-up of the account heretofore filed by the Defendant against the books of the Defendant Corporation, under the general supervision of Lybrand, Ross Bros. & Montgomery, Certified Public Accountants, pursuant to stipulation of Counsel October 15, 1930.

Yours very truly, G. Dixon Shrum, Special Master."

Present: G. Dixon Shrum, Esq., Special Master; Jo. Baily Brown, Esq., for the plaintiff; Marshall A. Christy, Esq., for the defendant; William F. Marsh, Resident Partner, Lybrand, Ross Bros. & Montgomery, Auditors and Accountants.

This meeting was held at the office of Brown & Critchlow, 1518 Farmers Bank Building, instead of at the office of the Special Master, pursuant to agreement of the parties.

The Master stated that he called upon Mr. Marsh, resident partner of Lybrand, Ross Bros. & Montgomery, for the report of the check-up which was being made under the supervision of that firm, and that Mr. Marsh reported that on April 1, 1931, he had sent to Mr. O'Shea, counsel for the Triplex Company, two copies of said report, which was very voluminous.

By Mr. Brown: I understand that the purpose of this hearing is to expedite the proceeding and to find out when a further hearing can be held. I am instructed by Mr. [fol. 50] O'Shea to state to the Master and counsel for

defendant that he has been continuously engaged on the report since its receipt from the accountants; that he regards this report as a part of his proofs in the case; that therefore he feels that he must carefully study it before offering it in evidence; that he is anxious to proceed with the case as soon as possible; and that as now advised he thinks that he will be ready to commence taking testimony and to put in his entire case—subject to availability of witnesses—by a date commencing May 11th.

(By agreement of the parties the meeting was adjourned until Monday, May 11, at the office of Brown & Critchlow, 1518 Farmers Bank Building, Pittsburgh, Pa.)

[Title omitted]

Accounting Proceedings Before G. Dixon Shrum, Special Master

The parties met at the office of Brown & Chitchlow, Farmers Bank Building, Pittsburgh, Pennsylvania, at nine o'clock, Eastern Standard Time, Monday, May 11, 1931, pursuant to call of the Master.

Present: For Plaintiff: Ambrose L. O'Shea, Esq. For Defendant: Marshall A. Christy, Esq.

[fol. 51] Mr. O'Shea: I would like to make a part of the record my objections to the defendant's account.

"Objections to Defendant's Account as Filed With the Master

"First. Plaintiff objects to the account as filed for the reason that it is not in proper form.

"Second. Plaintiff objects to the defendant's account as filed in that it does not set forth the individual sales made by the defendant to its respective customers.

"Third. Plaintiff objects to the account as filed, in that it offsets the losses derived from loss-incurring sales against the profits derived by the defendant from profit-incurring sales.

"Fourth. Plaintiff objects to the account as filed, in that it charges against the amounts received from sales the cost of manufacturing large quantities of its product which was not sold.

"Fifth. Plaintiff objects to the account as filed, in that it includes as an item of cost an amount representing the material, labor and overhead incurred by the defendant in the manufacture of goods which were returned by the customers and offsets the loss incurred thereby against the profit-bearing sales.

"Sixth. Plaintiff objects to the account as filed, in that for the year 1928 the defendant credits itself as an item of cost with 3,722,601 square feet of glass at a total purchase price of $1,514,254.74, and also credits itself as an item of cost with 2,758,302 square feet of pyralin at a total purchase price of $445,333.80, whereas it charges itself with the sale of only 1,924,896 square feet of glass and 962,448 [fol. 52] square feet of pyralin at a total selling price of $1,871,826.25, leaving a balance of 1,797,705 square feet of glass and 1,795,854 square feet of pyralin unaccounted for.

"Seventh. Plaintiff objects to the account as filed, in that for the year 1929 defendant credits itself as an item of cost with 5,287,322 square feet of glass at a total purchase price of $2,159,062.17, and also credits itself as an item of cost with 3,198,639 square feet of pyralin at a total purchase price of $706,855.53, whereas it charges itself with the sale of only 4,038,720 square feet of glass and 2,019,360 square feet of pyralin at a total selling price of $3,784,129.61, leaving a balance of 1,248,602 square feet of glass and 1,179,279 square feet of pyralin unaccounted for.

"Eighth. Plaintiff objects to the account as filed, in that for the six months of the year 1930 included in the accounting period, defendant credits itself as an item of cost with 1,620,151 square feet of glass at a total purchase price of $512,776.80, and also credits itself as an item of cost with 954,474 square feet of pyralin, at a total purchase price of $182,144.51, whereas it charges itself with the sale of only 1,335,072 square feet of glass and 667,536 square feet of pyralin, at a total selling price of $1,073,295.76, leaving a balance of 285,079 square feet of glass and 286,938 square feet of pyralin unaccounted for.

"Ninth. Plaintiff objects to the account as filed, in that for the years of the accounting period defendant credits itself as an item of cost with large sums for labor, which said sums were expended by the defendant in the manufacture of a large amount of laminated glass that is unaccounted for in the defendant's sales.

[fol. 53] "Tenth. Plaintiff objects to the inclusion in the cost items for the year 1928 of interest on investment in the amount of $60,000, being interest at the rate of six per cent per annum on $1,000,000, for the reason that the books of the defendant company indicate that the defendant's investment did not reach $1,000,000 until in or about the month of October, 1928, and that in the months prior thereto in the year 1928, the investment ranged from $50,000 to $700,000.

"Eleventh. Plaintiff objects to the account as filed, and particularly with respect to the inclusion therein as an item of current expense of all credits representing 'Expenses for Experimentation,' for the reason that all such experimental expenses are properly capital expense, particularly so in this case in that such experimental expenses were carried on for the purpose of developing inventions and resulted in the development of inventions and the filing of applications therefor, all of which is a capital investment.

"Twelfth. Plaintiff objects to the account as filed, and particularly with respect to the inclusion therein as an item of current expense of all credits representing and entitled 'Miscellaneous Patent Expenses,' for the reasons given in objection 'Eleventh.'

"Thirteenth. Plaintiff objects to the account as filed, and particularly with respect to the inclusion therein as an item of current expense of all credits representing and entitled 'Commissions paid to Pittsburgh Plate Glass Company,' for the reason that it does not appear on the face of the account what, if any, arrangement, contract or agreement existed between the defendant and the Pittsburgh Plate Glass Company.

[fol. 54] "Fourteenth. Plaintiff objects to the account as filed, and particularly with respect to the inclusion therein as an item of current expense of all credits representing

'Payments to the Mellon Institute Fellowship,' for the reason that it appears on the face of the account that the amounts paid to Mellon Institute Fellowship represent gifts.

"Fifteenth. Plaintiff objects to the account as filed, and particularly with respect to the inclusion therein as an item of current expense of all cerdits representing 'Expenses of Triplex Patent case,' for the reason that such expense is not a proper item of expense in a patent accounting.

"Sixteenth. Plaintiff objects to the account as filed, and particularly with respect to the inclusion therein as an item of current expense of all credits representing 'Extraordinary Expenses,' for the reason that the items of expense entitled 'Extraordinary Expenses' represent the cost of moving the defendant's plant, which is in the nature of a capital expense.

"Seventeenth. Plaintiff reserves the right to file such further objections from time to time during the hearing as it may be advised are necessary or proper in view of the testimony that may be adduced at such hearings.

Respectfully submitted, Ambrose L. O'Shea, Counsel for Plaintiff."

[fol. 55] C. L. McHenry, a witness produced on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. Mr. McHenry, you are the person who swore to defendant's statement of account before the Master?

A. I am.

Q. Are you an officer of the defendant, Duplate Corporation?

A. I am not.

Q. Will you please state just what your connection with the defendant, Duplate Corporation, is?

A. As auditor.

Q. Auditor of Duplate Corporation?

A. Well, no; that is not exactly right. I am auditor for the Pittsburgh Plate Glass Company, which carries my duties to the Duplate.

Q. Just what is the connection between the Pittsburgh Plate Glass Company and the Duplate Corporation?

A. Their stock holdings.

Q. Pittsburgh Plate Glass Company is a stockholder of the Duplate Corporation?

A. Duplate Corporation; yes, sir.

Q. Does it have any other stockholder besides the Pittsburgh Plate Glass Company?

A. Du Pont Company, 50 per cent.; that is all.

Q. Any other besides the du Pont Company and the Pittsburgh Plate Glass Company?

A. No, sir.

Q. What were the respective stockholdings of those two corporations?

A. Fifty per cent. each.

Q. So that as the auditor of the Pittsburgh Plate Glass Company, you prepared the defendant's statement of ac- [fol. 56] count when it was called for under the Master's order of the Duplate Corporation?

A. Yes, sir.

Q. I take it, therefore, that you are thoroughly familiar with the books of the Duplate Corporation?

A. Yes.

Q. And had that familiarity before the filing of this account?

A. Yes, sir.

Q. When was the Duplate Corporation organized?

A. In the last—I think it was December, about the 28th, of 1927. It was just a few days before the beginning of 1928.

Q. Did any corporation or individuals doing business under the name of Duplate Corporation, or any other name that you were connected with, either directly or indirectly, carry on any business in manufacturing or selling laminated glass, prior to January 1, 1928?

A. No one that I was connected with.

Q. Did the Pittsburgh Plate Glass Company make or sell laminated glass prior to January 1, 1928?

A. No, sir.

Q. Now, in the early part of 1928, after the incorporation of the defendant company, did the defendant company have a uniform price which it charged to all customers?

A. For the sale of Duplate——

Q. For the sale of laminated glass.

A. The price was not uniform; it varied considerably.

Q. And what were those variations dependent upon?

A. On the quality of the product and the amount of edge work.

Q. Anything else?

A. That is all I can think of now.

[fol. 57] Q. What were the differentiations in quality?

A. As to the quality of glass and pyralin which it was necessary to use in order to produce the product that the customer required.

Q. Now, referring to the quality of the glass, how many different qualities did the Duplate Corporation have in the early part of 1928?

A. I believe they had some silvering quality, glazing quality, window glass, and heavy polished plate.

Q. Is there a distinction between glazing quality and window glass, in the glass trade?

A. Oh, yes. It is made under a different process. Glazing quality of plate glass—when I speak of glazing quality, that is plate glass.

Q. Window glass is commonly known in the trade as sheet glass, is it not?

A. It is known under that name.

Q. And the other qualities are known as plate glass?

A. Yes, plate glass.

Q. And how many different qualities were there under the plate glass heading?

A. Two—silvering and glazing. I would also say that the difference of the bracket of the glass that was used would affect the cost.

Q. What do you mean by "bracket"?

A. Difference in the size of the glass.

Q. Is that true both of plate glass and sheet glass?

A. It is.

Q. Now, you spoke also as to difference as to edge work. That really applies to both plate and sheet?

A. Yes.

Q. And is really an additional operation on the glass?

A. It is the finishing of the edges, making it fit for use.

[fol. 58] Q. Of course, some glass was sold without the edge work?

A. It was.

Q. And still it was fit for use?

A. Well, it had to be cut and edged before it could be used.

Q. Well, just what does edging mean, in the trade?

A. It is putting on either a rough or smooth or finished edge on the piece that is to be used.

Q. You mean on the laminated piece?

A. Yes; laminated or unlaminated.

Q. Well, of course, we are directing our attention in this examination to laminated.

A. That applies to laminated.

Q. So in the future when we are talking of glass in this examination, let us take it for granted that we are discussing laminated glass, unless the question asks for some information with respect to glass generally or specifically.

A. Yes, sir.

Q. Is it not possible to use glass without having this edge work on it?

A. It is, and it is used in the rear lights of automobiles.

Q. As a general custom, is it not true that the Duplate Corporation sold its glass at a particular price, and then an additional price for the edge work that was put on the laminated glass?

A. On one order that happened, with the Fisher Body Company.

Q. Is that the only order?

A. That is the only large order. There may have been small orders that were filled, so much per foot for the glass, and so much per inch or foot for the edge work. The majority of sales are made so much per plate or per foot.

Q. Without any additional charge for——

[fol. 59] A. That price includes the edge work cost.

Q. That price included the edge work cost, except in the case of the Fisher Body?

A. The Fisher Body was the large order that was handled the other way.

Q. Did your differentiation in prices between different customers have any relation to the cost of transportation of the glass?

A. I could not answer that.

Q. You mean by that that you don't know?

A. I don't know. That would be the sales department's operations.

Q. And who in the sales department?

A. Mr. Judson.

Q. May I take it for granted that with respect to all matters relating to sales, that the man who would have the information on that point would be Mr. Judson?

A. Yes, sir.

Q. Is Mr. Judson an officer of the Duplate Corporation?

A. No, sir.

Q. Is he an employee of the Duplate Corporation?

A. No. He is Pittsburgh Plate Glass Company entirely.

Q. Is he an officer of the Pittsburgh Plate Glass Company?

A. No, not to my knowledge.

Q. He is an employe of the Pittsburgh Plate Glass Company?

A. Yes, sir; sales manager.

Q. And what is his title in the Pittsburgh Plate Glass Company?

A. Sales manager.

Q. From whom did Duplate purchase its glass?

A. Pittsburgh Plate Glass Company, practically—that is, all the plate glass. It may have purchased window glass [fol. 60] outside the Pittsburgh Plate Glass Company.

Q. But its main purchases of glass were from the Pittsburgh Plate Glass Company?

A. Yes, sir.

Q. And do you know whether the Duplate Corporation received any preferential price over the market for the glass which it purchased from the Pittsburgh Plate Glass Company?

A. I understand it purchased it at the market price, less 10 per cent.; that is, the price to other customers. Ten per cent. lower than outside trade would be the proper way to put that. There may be a standard list with the standard 10 per cent. on it; the Duplate Corporation would get another 10 per cent. below the other customers.

Q. So that customers other than Duplate Corporation were considered as outside customers?

A. Yes, sir.

Q. And Duplate Corporation was considered as having some relation to the Pittsburgh Plate Glass Company?

A. Well, they received the benefit of that lower purchase price.

Q. But you considered the others as being outside customers?

A. Yes, sir.

Q. Who were the officers of Duplate Corporation in or about January, 1928?

A. Mr. H. S. Wherrett—I am not familiar enough with that to give you the title or just who are all the officers. Mr. Wherrett, as I recall it, was president; Mr. Davis, Mr. Doyle was treasurer, and Mr. Pitcairn assistant treasurer.

Q. But before that, the defendant in this case was originally incorporated under the name of Pittsburgh Safety Glass Company, was it not?

[fol. 61] A. Yes, sir, it was.

Q. And some time later changed its name to Duplate Corporation?

A. Yes, sir.

Q. Do you know just when that change took place?

A. About the spring of 1929.

Q. Now, as I understand you, you stated that Mr. H. S. Wherrett was an officer of the Duplate Corporation in or about the early part of 1928?

A. He was the president of the Pittsburgh Safety Glass Company, and I also understand president of the Duplate Corporation.

Q. You think he was also president of the Duplate Corporation?

A. Yes.

Q. Do you know a man named F. D. Davis, Jr.?

A. No, sir.

Q. You don't know whether he was chairman of the Board of the Pittsburgh Safety Glass Company?

A. I do not.

Q. Do you know a man named R. L. Clause?

A. Yes, sir.

Q. Was he an officer of the Pittsburgh Safety Glass Company in the early part of 1928?

A. He is now, and he probably was then, but as to his title—I don't know.

Q. Is it possible for you to find out that fact from your records?

A. Yes, sir.

Q. Will you do so and let us know?

A. Yes, sir.

Q. Whether he was an officer of the Pittsburgh Safety Glass Company at that time, and if so, what officer?

A. Yes, sir.

Q. But you do know that he was at that time vice-president of the Pittsburgh Plate Glass Company?

[fol. 62] A. Yes, sir.

Q. Do you know a man named H. B. Higgins?

A. Yes, sir.

Q. Was he an officer of Pittsburgh Safety Glass Company, in or about the early part of 1928?

A. I don't know.

Q. Will you endeavor to ascertain that fact for us?

A. I will.

Q. And do you know whether or not Mr. H. B. Higgins was an officer of the Pittsburgh Plate Glass Company at or about that time?

A. He was vice-president.

Q. Of Pittsburgh Plate Glass Company?

A. Yes.

Q. Do you know a man by the name of R. W. Reisinger?

A. I do not.

Q. There was no man by that name an officer or director of the Pittsburgh Plate Glass Company at that time?

A. No, sir.

Q. Do you know who the directors were of the Pittsburgh Safety Glass Company, in or about the early part of 1928?

A. I do not.

Q. Will you endeavor to ascertain that fact also?

A. I will.

Q. Do you know a man named Clarence M. Brown?

A. I do.

Q. Is he alive?

A. Yes.

Q. Was Clarence M. Brown an officer or director of the Pittsburgh Safety Glass Company in the early part of 1928?

A. I don't know.

Q. Was he connected as an officer or director of the Pittsburgh Plate Glass Company at that time?

[fol. 63] A. He was vice-president.

Q. Do you know a man named C. K. Davis?

A. I do not.

Q. Do you know a man named D. W. Doyle?

A. Yes, sir.

Q. Was he an officer or director of the Pittsburgh Safety Glass Company, in the early part of 1928?

A. He was not.

Q. Is he an officer or director now?

A. No. He is in Italy at the present time. He was treasurer, I believe, in the years 1929 and 1930, or maybe just in 1930.

Q. That is, treasurer of Pittsburgh Safety Glass Company?

A. Yes.

Q. In either both or one of the years 1929 or 1930?

A. Yes. Mr. McBride was treasurer in the year 1928.

Q. Was Mr. McBride an officer of the Pittsburgh Plate Glass Company?

A. No, sir.

Q. Or an employee of the Pittsburgh Plate Glass Company?

A. No.

Q. When you obtain the information, Mr. McHenry, with respect to who were the officers and directors of Pittsburgh Safety Glass Company, and particularly those whose names you have jotted down, will you also ascertain whether they continue up to the present time, and if not, let us have such changes as were made up to the end of the accounting period?

A. Yes, sir.

Q. Now, it is a fact, is it not, that in or about 1931, the Pittsburgh Plate Glass Company purchased all of the interest of du Pont Company?

Mr. Christy: Object to the question as immaterial, in that it relates to a time subsequent to the termination of the [fol. 64] accounting period in this case.

Mr. O'Shea: Mr. Master, I think it is material, for the reason this case is still progressing, and it is of vital importance to determine just what the present status of this Duplate Corporation is. I think it is going to be very

material for us before the end of this accounting, and, as a mat-er of fact, I think it is more or less a matter of public record now.

The Master: Objection overruled.

A. Pittsburgh Plate Glass Company purchased all the interest, but I am not sure as to the date.

Q. Well, in any event, at the present time the Pittsburgh Plate Glass Company is the sole stockholder of Duplate Corporation?

A. Yes, sir.

Q. Now, Mr. McHenry, in the early part of 1928, where was the corporation, then known as Pittsburgh Safety Glass Company, located?

A. At the upper end of Works No. 1, on the property of the Pittsburgh Plate Glass Company, and in their building.

Q. You mean by "Works No. 1" a plant or works of the Pittsburgh Plate Glass Company?

A. It is the Creighton factory.

Q. And at that period then, the factory of the Pittsburgh Safety Glass Company occupied the same premises as Pittsburgh Plate Glass Company?

A. Yes, sir.

Q. And was operating in a plant of the Pittsburgh Plate Glass Company?

A. Yes, operating in one of our buildings.

Q. And "our buildings" means Pittsburgh Plate Glass Company?

A. Pittsburgh Plate Glass Company, yes.

[fol. 65] Q. And how long did it continue operating in that building?

A. Until about February, 1929.

Q. Did it move at that time?

A. It moved to its own building.

Q. And where was that building located?

A. It stayed on Pittsburgh Plate Glass Company's property.

Q. At Creighton also?

A. At Creighton.

Q. In 1928, when the Pittsburgh Safety Glass Company was occupying and operating in one of the plants of the Pittsburgh Plate Glass Company, did it pay rent?

A. It did not, for the factory building it was operating in.

Q. Has either the Pittsburgh Safety Glass Company or its successor in name, Duplate Corporation, paid rent to Pittsburgh Plate Glass Company for any of the buildings it occupied?

A. It has paid rent, I believe, in the year 1929, for storage space that they took or used in the Creighton factory.

Q. That is the only rent it ever——

A. And they paid rent for an office building.

Q. And office building?

A. An office building.

Q. Did it have an office building at Creighton?

A. When it was operating at the first plant, they rented an office building of the Pittsburgh Plate Glass Company. It was a very small building—office space.

Q. At Creighton?

A. Yes.

Q. When it built its factory in or about the early part of 1929, did it own the ground on which it built the factory?

[fol. 66] A. It did not.

Q. Who was the owner of that land?

A. Pittsburgh Plate Glass Company.

Q. Going back again to the early part of 1928, and through that year, where were the general books of account of the defendant, then known as Pittsburgh Safety Glass Company, kept?

A. In the general office of the Pittsburgh Plate Glass Company.

Q. And where is that located?

A. In the Grant Building, Pittsburgh.

Q. And are we to understand from that that the corporation then known as Pittsburgh Safety Glass Company maintained its general offices in the space occupied by Pittsburgh Plate Glass Company?

A. There was only one office occupied by the Duplate or Safety Glass employees, which was Mr. Penning's, the manager of the plant.

Q. One office in the offices of Pittsburgh Plate Glass Company?

A. Yes.

Q. In the Grant Building, in Pittsburgh?

A. Yes. In 1928, we were in the Frick Building.

Q. When you say "we", you mean the Pittsburgh Plate Glass Company?

A. Yes.

Q. Did Pittsburgh Safety Glass Company pay rent to the Pittsburgh Plate Glass Company for that one office of Pittsburgh Plate Glass Company?

A. It did, after we moved to the Grant Building, where they occupied a separate room.

Q. When did you move to the Grant Building, approximately?

A. March, 1929.

Q. So that all during the year 1928, the Pittsburgh Safety Glass Company paid no rent to Pittsburgh Plate Glass Company for the office which it occupied in the offices of [fol. 67] Pittsburgh Plate Glass Company?

A. Not to my knowledge.

Q. How many employees were in the room occupied by the Pittsburgh Safety Glass Company?

A. In 1928?

Q. In 1928.

A. Three employees in the board room.

Q. Well, the board room is the room where?

A. Where Mr. Penning had his desk.

Q. Which the Pittsburgh Safety Glass Company occupied as its accounting department, shall we say?

A. No; Mr. Penning was the manager.

Q. Manager of what?

A. Safety Glass.

Q. Mr. Penning was manager of the Safety Glass Company and was an employee of the Pittsburgh Safety Glass Company?

A. Yes.

Q. And received his salary from the Pittsburgh Safety Glass Company?

A. Yes.

Q. Had he any connection at all with the Pittsburgh Plate Glass Company?

A. Not at all.

Q. The other three accountants or bookkeepers, were they all employees of the Pittsburgh Safety Glass Company?

A. Of the Pittsburgh Plate Glass Company.

Q. They were employees of the Pittsburgh Plate Glass Company?

A. Yes.

Q. They received their salaries from the Pittsburgh Plate Glass Company?

A. Yes, sir.

Q. Throughout this year 1928?

A. Yes, sir.

[fol. 68] Q. Did you do any work on the books of the Pittsburgh Safety Glass Company during the year 1928?

A. I did.

Q. What was the character of the work which you did?

A. Instructions to the factory accountant.

Q. And where was the factory accountant located?

A. At Creighton.

Q. Did you receive any part of your salary from the Pittsburgh Safety Glass Company?

A. No, sir.

Q. For the work which you did for it?

A. Not in 1928.

Q. Did you audit the books of the Pittsburgh Safety Glass Company for the year 1928?

A. Yes, sir.

Q. You did that as an employee of Pittsburgh Plate Glass Company?

A. Yes, sir.

Q. Where were the records of factory accounts kept in the year 1928?

A. At the factory.

Q. By an employee of the Pittsburgh Safety Glass Company?

A. Yes, sir.

Q. Who determined the policy and amount of depreciation and obsolescence in the year 1928?

A. Mr. Penning and Mr. Spahr, in conference with the directors.

Q. Who is Mr. Spahr?

A. Assistant comptroller.

Q. Assistant comptroller of what?

A. Pittsburgh Plate Glass Company.

Q. Those two were in conference with the directors of which company?

A. Of the Pittsburgh Plate Glass Company, and they may have consulted the directors of the Pittsburgh Safety [fol. 69] Glass Company from Arlington—Mr. Davis.

Q. Where is Arlington?

A. Arlington, New Jersey.

Q. You made none of the entries in the general books of account of the Pittsburgh Safety Glass Company or the Duplate?

A. No, sir.

Q. You simply audited such entries as were found there?

A. Yes, sir.

Q. Do you recall an account on the general ledger of Pittsburgh Safety Glass Company, and carried through into the books of the corporation of the changed name, "Duplate Corporation," entitled "E. A. Pitcairn, Treasurer's Account"?

A. That account should be there, although he is assistant treasurer, not treasurer.

Q. That account should be where?

A. In the Duplate's books.

Q. The general ledger of the Pittsburgh Safety and Duplate books?

A. Yes, sir.

Q. You say E. A. Pitcairn is assistant treasurer?

A. Yes.

Q. Of what?

A. The Duplate Corporation.

Q. And was assistant treasurer of Pittsburgh Safety Glass Company?

A. Yes.

Q. Did E. A. Pitcairn have any connection with the Pittsburgh Plate Glass Company?

A. He was treasurer.

Q. He was treasurer of Pittsburgh Plate Glass Company also?

A. Yes.

[fol. 70] Q. And assistant treasurer of Pittsburgh Safety Glass Company and Duplate Corporation?

A. Yes, sir.

Q. Who was the treasurer of Pittsburgh Safety Glass Company?

A. Mr. McBride.

Q. In 1928?

A. Yes.

Q. Did he remain treasurer up until June, 1930, do you know?

A. No; Mr. Doyle took his place. I don't recall the date.

Q. Did Mr. McBride have anything to do with the Pittsburgh Plate Glass Company?

A. No, sir.

Q. He was solely an officer and employee, I assume also, of the Pittsburgh Safety Glass Company?

A. Yes; a du Pont employee.

Q. He was a du Pont man?

A. Yes.

Q. Did he receive any compensation for his services, as treasurer?

A. Not to my knowledge.

Q. Did Mr. Doyle receive any compensation for his services as treasurer?

A. Not to my knowledge.

Q. Did Mr. E. A. Pitcairn receive any compensation for his services as assistant treasurer of Pittsburgh Safety Glass Company and Duplate Corporation?

A. No, sir.

Q. I understood you to say, Mr. McHenry, that Pittsburgh Safety Glass Company had no sales manager?

A. Their sales were handled by—sold to the Pittsburgh Plate Glass Company. The product was sold to the Pittsburgh Plate Glass Company.

[fol. 71] Q. You mean by that, don't you, that the Pittsburgh Plate Glass Company sold all the product of Pittsburg Safety Glass Company to the consumers, like automobile manufacturers, automobile body builders, jobbers——

A. Who sold it, did you say?

Q. Pittsburgh Plate Glass Company.

A. Pittsburgh Plate Glass Company did.

Q. What was the system used by the Pittsburgh Safety Glass Company, and later the Duplate Corporation, in making purchases of raw material and supplies?

A. They were requisitioned by the plant manager and purchased through the Pittsburgh office—the Pittsburgh Plate Glass Company.

Q. Am I correct in stating, then, that the system followed somewhat as follows: that the plant manager made a requisition for his supplies of raw material to the Pittsburgh Plate Glass Company, and that thereafter the Pittsburgh Plate Glass Company placed the orders with the suppliers of raw material?

A. Yes, sir.

Q. That is true of what is ordinarily referred to both as raw material and supplies?

A. Yes, sir.

Q. It is true, is it not, that all glass, excepting odd instances, was purchased from Pittsburgh Plate Glass Company?

A. It is.

Q. And that all pyralin, except possibly in odd instances, also was purchased from du Pont Viscoloid Company?

A. It is.

Q. Now, what was the system or plan of selling the product of the Pittsburgh Safety Glass Company, afterwards known as Duplate Corporation?

[fol. 72] A. An invoice was rendered by the Safety Glass Company and Duplate Corporation to the Pittsburgh Plate Glass Company.

Q. Can we start back from the consumer and trace it back to Pittsburgh Safety?

A. The Pittsburgh Plate Glass Company's sales department would secure an order, say, from Fisher Body Company; that order would be placed with the Duplate Corporation, to manufacture certain size and glass to pattern.

Q. Was there some document transmitted from Pittsburgh Plate to Pittsburgh Safety?

A. Yes, there would be a copy of the order made up.

Q. That is to say, a copy from the ultimate consumer, as Fisher Body Company, would be made up by Pittsburgh Plate Glass Company and turned over to Pittsburgh Safety Glass Company or Duplate?

A. Yes; to make up certain glass according to the pattern that the order called for. Then when the glass is shipped an invoice is made out by the Safety Glass Company or the Duplate Corporation against the Fisher Body Company, and if the sales price is $1.75, they mark it on the invoice "$1.75," and from that bill from the Duplate Corporation, an invoice is made out by the Pittsburgh Plate Glass Company to the Fisher Body Company, at $1.75, as specified on the original order. The Pittsburgh Plate Glass Company pays Duplate Corporation $1.75, less their commission, say of 3 per cent.

Q. I didn't quite understand, Mr. McHenry. I understood you to say that Pittsburgh Safety, afterwards Duplate invoiced directly to the consumer, as Fisher Body Company?

A. They specify on that bill whether it is for Fisher Body Company.

[fol. 73] Q. Is this what you mean: Pittsburgh Safety, or Duplate, would make up an invoice, on which would be stated that the glass included in that invoice was for Fisher Body, or Smith, or Jones?

A. Yes.

Q. But that that invoice would not go to Fisher Body, Smith, or Jones?

A. No, it does not.

Q. Where would that invoice go?

A. That comes to the Pittsburgh office.

Q. You mean by Pittsburgh office——

A. The Pittsburgh Plate Glass Company's office. It is our understanding that we make all the sales. That saves us work in making a regular bill from the Duplate Corporation to Pittsburgh Plate Glass Company, and then from the Pittsburgh Plate Glass Company to the consumer. We use this original bill that comes from the Duplate factory, to tell us that this shipment goes to Fisher Body. That serves as our original invoice, which is kept in our files in the Pittsburgh Plate Glass Company.

Q. This invoice from Pittsburgh Safety Glass Company, or Duplate Corporation, is that the invoice that is usually known in your organization as the "pink slip"?

A. Yes, it is.

Q. Well, was not the sole purpose of that pink slip which you have referred to in your testimony as an invoice from Duplate or Safety Glass to the Pittsburgh Plate Glass Company, to acquaint Pittsburgh Plate Glass Company with the fact only that certain shipments had been made to certain customers, and that with that information, to wit, that shipment had been made, to acquaint the Pittsburgh Plate Glass Company further with the fact that it was time then to bill the customer, such as Fisher Body, Smith or Jones?

[fol. 74] A. No, that would put it on a basis of a shipping record. It is really the original invoice that is retained in our office as such.

Q. Invoice from whom to whom?

A. From the Duplate Corporation to Pittsburgh Plate Glass Company. Also, it serves from Pittsburgh Plate Glass Company to the consumer.

Q. Was a copy of that, what I refer to as the pink slip, and which you have referred to as the Duplate invoice to Pittsburgh Plate, retained by Safety Glass, or later Duplate Corporation?

A. They have a copy of each one.

Q. They kept a copy of each one?

A. Yes.

Q. At the end of each month, did not Pittsburgh Plate Glass Company use the pink slips for the purpose of making up a summary of the shipments made during that month?

A. We did.

Q. And what was the purpose of that summary?

A. To get our cost, what we were to pay Duplate for the goods we purchased from them.

Q. To get your cost?

A. Yes.

Q. You mean by that to determine simply how much you owed Duplate since your cost was merely what Duplate or Safety Glass charged Pittsburgh Plate?

A. Plus 3 per cent.

Q. The purpose of the summary from the pink slips was to enable you to determine only how much commission you were entitled to during that month, for the goods shipped in that month by Duplate or Safety Glass?

A. Yes. We used it for that purpose.

Q. And was there any other purpose in that summarization of the pink slips?

[fol. 75] A. Well, it would give us the total sales of Duplate for that month and the commission earned.

Q. Well, wouldn't it have been possible for you to have summarized your own orders received from the customers, to obtain the same information?

A. No; because we might not have posted to that order the amount of goods shipped during that month from the Pittsburgh office.

Q. So that the main purpose of the pink slip, then, was to inform you of the amount of goods shipped during that month by Duplate?

A. Well, it served as our original invoice.

Q. It is true it served as your original invoice, but it also served, didn't it, to acquaint you with the fact that so much

footage had been shipped to various customers during the month by Safety Glass Company or Duplate?

A. Yes.

Q. Are these pink slips available under one binder?

A. A certain portion would be. A portion of a month or maybe two months in one volume.

Q. Are they in binders scattered through other sales of Pittsburgh Plate?

A. No; kept separate.

Q. All kept separate.

A. Yes.

Q. Now, it is a fact, is it not, Mr. McHenry, that in some instances, at least, it was the policy of the Pittsburgh Plate Glass Company to grant a rebate to some of its customers. I use the word "rebate," because that is the only way I know how to specify it. What I mean by it is that the invoice to the customer would specify a particular rate per foot and that subsequently Pittsburgh Plate Glass Company would forego some percentage or some amount of that invoiced price?

[fol. 76] A. Yes, sir; that is true.

Q. And that that policy was acquiesced in by the Pittsburgh Safety Glass Company and Duplate Corporation, to the extent that these rebates or allowances were charged back against Pittsburgh Safety Glass Company, or Duplate Corporation?

A. Yes, sir.

Q. How was the amount of those rebates or allowances determined upon, and by whom?

A. Well, we would have a contract, say with Fisher Body, for glass, at $2.00 a foot.

Q. When you say "we," you mean Pittsburgh Plate Glass Company?

A. Yes, Pittsburgh Plate; and they would have some bodies built by Fleetwood, for, say, Cadillac cars. We would bill Fleetwood at $2.50 a foot, so that they would not know what Fisher Body was paying us for the glass. Later on, we would rebate fifty cents a foot to the Fisher Body Company, because Fleetwood—we charged that back to them at $2.50, and we would have to abide by our contract that we would furnish their glass for $2.00 a foot—the glass that was used in their cars.

Q. Now, the determination of whether that rebate should be fifty cents or ten cents rested solely in Pittsburgh Plate Glass Company?

A. It rested solely on the original contract with the purchaser.

Q. Which was made between Pittsburgh Plate Glass Company and the customer?

A. Yes, the consumer.

Q. And who, in Pittsburgh Plate Glass Company, determined what rebate would be given?

A. Mr. Judson.

Q. And yet when you came to pay the Safety Glass Company or Duplate for the goods shipped for any particular month, you deducted from your payment to Duplate the [fol. 77] amount of these rebates or allowances? Is that the fact?

A. We deducted from them the amount after taking off what commission we made on that shipment.

Q. I mean, laying aside the question of commissions due Pittsburgh Plate, it is a fact that you charged back, or deducted from the invoice price which appeared on the pink slip from Pittsburgh Safety to Pittsburgh Plate, any rebates that had been allowed by Mr. Judson?

A. Yes, sir.

Q. Were there no instances where such rebates were allowed on orders that came directly from the user of the glass?

A. Not to my knowledge. That is for a price adjustment.

Q. Do you distinguish between what you now refer to as a price adjustment and what you have previously referred to as a rebate?

A. Well, this that we mentioned here is a rebate or price adjustment.

Q. Yes; but my question was whether there were no instances where such rebate or price adjustment was allowed to the user directly, even on purchases that were made direct?

A. Not to my knowledge.

Q. Is it a fact that shipments made by Pittsburgh Safety Glass, later Duplate Corporation, were boxed—that is, the glass was boxed—did the invoices or pink slips charge Pittsburgh Plate with that boxing cost?

A. Yes. There were some sales where boxing was charged to the customer, and it was not credited to the Duplate Corporation.

Q. Was that an oversight or the policy?

A. That was the intention at that time.

Q. That was the policy?

A. Yes.

[fol. 78] Q. In other words, while Safety Glass Company furnished the material and did the labor of boxing, it did not charge for that material or labor?

A. No.

Q. But that in some instances, at least, Pittsburgh Plate did charge an amount for material and labor in boxing to the customer, and that the amount received by Pittsburgh Plate Glass Company for that material and labor was not credited to Pittsburgh Safety Glass Company or Duplate Corporation?

A. That is true.

Q. And that was done because of an agreement between Pittsburgh Safety, afterwards known as Duplate, and Pittsburgh Plate Glass Company?

A. Yes.

Q. Were these various agreements with respect to commissions and any other items of charges contained in any written agreement between Duplate or Safety Glass Company and Pittsburgh Plate Glass Company?

A. I can't answer that. The matters were usually taken up by Mr. Spahr or Mr. Wherrett, or someone else in authority. Whether there was anything written on this I can't say.

Q. How would we find that out, as to whether there was anything?

A. By inquiring of Mr. Spahr.

Q. Will you ask Mr. Spahr whether there was any written agreement made between Pittsburgh Safety and Pittsburgh Plate, with respect to commissions or any other matters relating to charges to be made against either or both of those parties, and if there were such written agreement, I would like to have it produced.

A. Yes.

(Recess until 1:30 o'clock P. M.)

[fol. 79] Afternoon Session

C. L. McHenry, resumes the stand:

Direct examination (continued).

By Mr. O'Shea:

Q. Mr. McHenry, have you got the names of the officers and directors of the Pittsburgh Safety Glass Company as of the early part of 1928?

A. I have.

Q. Will you state first the names of the officers, and then the names of the directors?

A. Mr. F. B. Davis, Jr., chairman of the board; Mr. H. S. Wherrett, president; Mr. R. L. Clause, vice-president and general manager; Mr. H. B. Higgins, secretary; Mr. W. U. Reissinger, treasurer; Mr. E. A. Howard, assistant secretary; Mr. Edward Pitcairn, assistant treasurer; Mr. Clarence M. Brown, H. S. Wherrett, Robert L. Clause, Harry Higgins, F. B. Davis, Jr., W. U. Reissinger. Now, there is a change made here throughout the year. Mr. Reissinger was taken off on May 5, 1928, and was replaced by A. E. Pitcher, and F. B. Davis, Jr., was taken off, and F. W. Pickard was put in his place, but I don't have the date. Then Mr. McBride was treasurer to May 1, 1928, and he was replaced by Mr. Doyle. Mr. Reissinger was treasurer to 5/28, and he was replaced by Mr. McBride, and after Mr. McBride was Mr. Doyle, and after Mr. Doyle was Mr. Garland—B. R. Garland.

Q. You don't know the date?

A. No. I have the exact date the corporation changed its name to Duplate.

Q. What was that?

A. That was March 8, 1929, changed from Pittsburgh Safety Glass Company to Duplate Corporation; was certified at Harrisburg March 25, 1929.

Q. Was F. B. Davis, Jr., connected in any way with the Pittsburgh Plate Glass Company?

[fol. 80] A. No.

Q. Was Mr. Pitcher connected in any way with the Pittsburgh Plate Glass Company?

A. No, sir.

Q. Was he connected in any way with du Pont Viscoloid Company?

A. He is.

Q. Was and is?

A. Yes.

Q. Was Mr. Pickard connected in any way at that time with Pittsburgh Plate?

A. No, sir.

Q. Was he connected also with du Pont Viscoloid?

A. Yes.

Q. Was Mr. Garland connected in any way with Pittsburgh Plate?

A. No, sir.

Q. Was he connected in any way with du Pont Viscoloid?

A. Yes, he was.

* * * * * * *

Q. The warehouses are a part or department of the Pittsburgh Plate Glass Company?

A. They are the selling agents.

Q. Selling agents in the various localities throughout the country, and might be described as the Pittsburgh Plate Glass Company's distributors?

A. Yes, sir.

Q. And the usual custom, I suppose, in taking the orders, is these warehouses or distributors take the order direct from the customer in their territory. Is that correct?

A. That is true.

Q. And then having received an order from a customer in their respective territories, they make out one of these series forms?

[fol. 81] A. Yes, sir.

Q. So that the pink slip originates in the warehouse?

A. Where the warehouse makes the sale, yes.

Q. Now, the other sales are sales made direct from Pittsburgh's home office to large customers. Is that the fact?

A. Yes, sir.

Q. The home office not handling the smaller customers, or customers having smaller orders?

A. Yes, sir.

Q. That is about the general plan of the selling of this glass?

A. Yes, sir.

* * * * * * * *

Q. Who, in the Duplate Corporation, responded to requests for credit information?

A. Well, there is no one in the Duplate Corporation, as far as I know, because all sales are made to the Pittsburgh Plate Glass Company.

Q. What has the connection between sales to the Pittsburgh Plate Glass Company got to do with the credit information? Credit information would be questions for the purpose of advising the sellers of material to Duplate Corporation.

A. You mean sales to or sales from Duplate?

Q. I understood you to use the word "to," and yet you say there was no one in the Duplate Corporation who gave credit information when it was requested, because all sales were made to Pittsburgh Plate Glass Company?

A. That is true.

Q. You mean, all sales of raw material and supplies were made to Pittsburgh Plate Glass Company?

A. All sales of the product of Duplate are made to Pittsburgh Plate Glass Company. Any local sales, say of scrap [fol. 82] machinery, sold from Duplate, the credit would be passed on by Mr. Pitcairn, who carries the title of assistant treasurer.

Q. I haven't in my mind credit from Pittsburgh Plate Glass Company or Duplate to the customer. I have in mind credit to Duplate. It is not unusual, is it, that in mercantile arrangements or procedure that a mercantile agency, such as Bradstreet's, comes to a corporation and asks for information with respect to the particular company's standing, so as to report to people from whom they are asking credit. The credit I have in mind is the credit which is given to Duplate Corporation, and what I want to know is, who in the Duplate Corporation answered these mercantile agencies when they requested information with respect to Duplate Corporation?

A. That would be answered by Mr. Spahr, the assistant comptroller of the Pittsburgh Plate Glass Company.

Q. Pittsburgh Safety Glass Company, or Duplate, purchased all of its glass from Pittsburgh Plate Glass Company, or substantially all of it?

A. Substantially all of it.

Q. And it is the custom in the glass trade, is it not, to purchase glass in standard sizes?

A. It is.

Q. And similarly the Duplate Corporation invoiced to its customers and Pittsburgh Plate Glass Company invoiced to its customers, laminated glass in the same standard sizes. Isn't that correct?

A. The billing price is based on the standard size it is cut from. For instance, a windshield has a contour taken out, but in billing, charging the customer, the over size is used.

Q. So that in a purchase of a windshield which is susceptible of being cut from a sheet of glass 20 by 30—that is the standard size?

[fol. 83] A. Yes.

Q. Duplate would use a 20 by 30 standard size sheet of glass, and charge the customer at the rate—so much per foot for a piece of glass 20 by 30. Is that correct?

A. There is always some allowance made for edging.

Q. That is an additional charge.

A. If the finished windshield was to be 20 by 30, they would have to have half an inch, in order to get their edge work on before it was down to the finished size of 20 by 30.

Q. But that edge work is charged additional to the standard stock size of glass?

A. Yes, sir.

Q. So that under that system of purchasing glass and selling laminated glass, there is no material loss?

A. It is very small.

Q. Now, in your defendant's statement of account, I notice that you have charged as an item of cost some 3,722,601 feet, for the year 1928, for which your account states that you paid $1,514,254.75; whereas, you have credited yourself with sales amounting to 962,448 feet, and 3 inches, which consists of two sheets of glass of the same size, so that that would make 1,924,896 feet of single sheets of glass, leaving a balance of 1,798,705 feet of glass unaccounted for in this defendant's statement of account. Do you know what the explanation is of that discrepancy?

A. We show on our December balance sheet that we have glass in process $41,083.66; finished glass in stock of $162,282.47.

Q. Have you got your so-called Schedule "J" here for the year 1928?

A. No.

Q. Well, now, you have accounted for the inventory at the end of the year, Mr. McHenry, but that obviously does

[fol. 84] not account for the whole 1,798,705 square feet of glass, does it?

A. No, it wouldn't, because there is a shrinkage throughout the process of manufacturing. I have Schedules "J" for each month of the year 1928.

Q. You have those?

A. Yes, for each month of the year 1928. Here is another item that would also account for where the glass got to. There is a loss in stock of Duplate of $41,826.01, and loss in stock of polished plate of $50,131.98.

Q. Will you turn to the month of September? Get out Schedule "J" for the month of September.

A. Yes, sir.

Q. What are these Schedules "J" that you have?

A. They are abstracts of the stock and departmental accounts.

Q. They constitute a record of your cost department of your costs?

A. Yes, sir.

Q. And they were kept from the beginning of the production of laminated glass by Pittsburgh Safety Glass Company?

A. Yes, sir.

Q. And you have one for each month down to the end of the accounting period?

A. Yes, sir.

Q. Now, in this month of September, I notice an item here called "Order cutting (1/1 to 1st current mo.) & stock loss (current)," and opposite that is the figure 92,038, which figures appear under the column headed "Feet". Does that mean that during the month of September you suffered a stock loss in plate glass of that much feet?

A. The records would indicate that there was a loss in September of 92,038 feet.

Q. Do you know how that came about?

[fol. 85] A. No, I am not prepared to say just how it came about.

Q. Will you be able to define any of the so-called losses and explain them, that appear on those Schedules "J", of your own knowledge?

A. Of the loss in stock, as indicated by this entry here, covered by 92,038 feet, is probably due to making up orders in advance, anticipating orders for that glass. We

did that in the early period, and later on we found that they changed the models of the car, and our glass was lost.

Q. Well, do I understand you wish the Master and the Court to understand now that you made up glass in which you used 92,038 feet, which you afterwards found you could not sell, because of a change in models?

A. I would have to verify it with the factory books before I would want to make a definite answer.

* * * * * * *

Tuesday, May 12, 1931, 10 o'clock A. M.

C. L. McHenry resumes the stand.

Direct examination (continued).

By Mr. O'Shea:

Q. Mr. McHenry, you have produced what we have been referring to in this record as the pink slips, for the year 1928?

A. Yes, sir.

Q. Those pink slips now become white slips. I hand you one of the 1928 so-called order slips or invoices, and ask you if that is one of the slips used by the Duplate Corporation during the year 1928?

A. It is. It is marked "N. S.", which is "non-shatterable." That was the way they marked them, to designate the Duplate invoices.

[fol. 86] Q. This document which you have just identified is on a Pittsburgh Plate Glass Company form?

A. Yes, sir.

Q. So that in the year 1928 the Pittsburgh Safety Glass Company used the forms of Pittsburgh Plate Glass Company?

A. Until they could get their supply made up—printed.

Q. And when was that?

A. That was in June, 1928.

Mr. O'Shea: I offer in evidence the document identified by the witness, and ask to have that marked as Plaintiff's Master's Exhibit 4.

Q. This Master's Exhibit No. 4, as I understand your policies, originated in the Detroit warehouse. Is that a fact?

A. From all indications, there is where it originated.

Q. And that, together with some of the other sheets of the order series, was sent where?

A. To the general office—Pittsburgh Plate Glass Company's general office.

Q. And the only part of the writing that appeared on that Exhibit No. 4 on its receipt at the general offices of the Pittsburgh Plate Glass Company was the typewritten part. Is that correct?

A. Yes, sir.

Q. And where were the extensions of footage and prices put on?

A. The sales department of the general office.

Q. Of Pittsburgh Plate Glass Company?

A. Yes, Pittsburgh Plate Glass Company.

Q. And after that what became of Plaintiff's Exhibit No. 4?

A. You mean, after the sales prices are put on?

[fol. 87] Q. After the sales prices are put on, what did the sales department of the Pittsburgh Plate Glass Company do with Exhibit No. 4?

A. They made an invoice against the Detroit warehouse.

Q. And kept Exhibit No. 4 in their files?

A. Files, yes, sir.

Q. Did it always remain in their files?

A. Yes, sir.

Q. Then a duplicate or triplicate or quadruplicate in the series bearing the same information that appears on Exhibit No. 4 was sent to the Duplate factory. Is that the fact?

A. No; the original was sent to the Duplate.

Q. Original or one of the series was sent to Duplate?

A. Usually the original order was sent.

Q. And did that original have the extensions of footage and prices that appear on Exhibit 4?

A. No, sir.

Q. All it had on it was the typewritten part?

A. Yes, sir.

Q. So that Exhibit No. 4 never passed through the hands of any employee of the Duplate Corporation?

A. It did at the factory.

Q. This Exhibit No. 4, as I understand it, never reached the factory, but the original of it did.

A. That is the original; but when it passed through the Duplate factory, it was not priced.

Q. It was only after it came back from the Duplate factory to the Pittsburgh Plate Glass Company's general offices that it was priced?

A. Yes, sir.

Q. So that Exhibit No. 4 in the condition in which it is now never did pass through Duplate Corporation?

A. No, sir.

[fol. 88] Q. Now, did the Pittsburgh Plate Glass Company invoice the Murray Corporation of America at the price of $3 for the material appearing on Exhibit No. 4?

A. It was invoiced to the Detroit warehouse at the price shown on your Exhibit No. 4.

Q. And how or what department or organization invoiced the Murray Body Corporation of America?

A. Detroit warehouse.

Q. And what did they invoice the Murray Corporation of America at?

A. I am not able to give that information. I do not know.

Q. Your records here wouldn't show that?

A. Our records here wouldn't show.

Q. Well, if you received either directly or indirectly payment from the Murray Corporation of America at the rate of $3 a foot, wouldn't your records here show that?

A. It would show it in Detroit. They would pay the Detroit warehouse for their invoice.

Q. And the Detroit warehouse in turn will remit to the Pittsburgh Plate Glass Company?

A. They would deposit their money collected to the credit of the treasurer of the Pittsburgh Plate Glass Company in Detroit.

Q. And Pittsburgh Plate Glass Company never knows what the ultimate consumer pays?

A. Not unless they go back and trace the invoices.

Q. That is to say, trace the warehouse——

A. Warehouse bills.

Q. Well, the warehouse, of course, is simply a department of the Pittsburgh Plate Glass Company, is it not?

A. Yes, sir.

[fol. 89] Q. Not organized as a separate corporate entity?

A. No.

Q. Now, at the end of January, 1928, an employee of Pittsburgh Plate Glass Company made up one of the so-called recaps, of which Master's Exhibit No. 1 is typical. Is that correct?

A. Yes, sir.

Q. At what price would Master's Exhibit No. 4 appear on the January 1928 recap?

A. $3 a foot.

Q. It would appear at $3 a foot?

A. Yes, sir.

Q. Have you that recap for the month of January, 1928, with you?

A. No, I have not. I also see there is a separate charge here for edging, but the price is marked on the bottom of the bill, $3 per square foot, less 5 per cent.

Q. That is to say, the recap would have the unit sale price and the foot rate?

A. Yes, sir.

Q. And then if there was an additional charge for edge work, that would also appear on the recap?

A. Yes, sir.

Q. Going back to my previous question, have you the recap for January, 1928, with you?

A. No, I have not.

Q. Where would that be?

A. If they retained that, it would be in the files up in the general office, or Creighton probably by this time. At that early date we were not altogether settled on our accounting schedule, so that we could have it standardized, and I am not just sure as to what form that was made up in back in 1928—the recap that you asked for.

Q. Well, do you mean by that that you are not sure at what price Master's Exhibit——

A. I am sure of the price.

[fol. 90] Q. —at which Master's Exhibit No. 4 was entered on the recap for that month?

A. Yes, sir.

Q. And you are sure that would be the $3 unit sales price?

A. Yes, sir, $3.

Q. Now, as I now understand your policy, at the end of the month there was an entry made in the Pittsburgh Plate

Glass Company's books, indicating what it owed Duplate and a corresponding entry made in the Duplate Corporation's books, indicating also what Pittsburgh Plate Glass Company owed Duplate. Is that correct?

A. Those entries would be in the Duplate's books.

Q. And not in the Pittsburgh Plate Glass Company's books?

A. Not in the Pittsburgh Plate Glass Company's books entirely.

Q. How would Pittsburgh Plate Glass Company know?

A. There is a control account in the Pittsburgh Plate Glass Company's books.

Q. Is it from these documents, of which Exhibit No. 4 is typical, or is it from the recap that those cross-entries in the Pittsburgh Plate Glass Company's books and the Duplate books were made?

A. It would be from the recap.

Q. Referring now to Master's Exhibit No. 1, that became a document belonging to Pittsburgh Plate Glass Company, did it not?

A. No, that was always retained in the Duplate's files

Q. And the documents of which Plaintiff's Exhibit No. 4 is typical became and remained in the Pittsburgh Plate Glass Company's files?

A. It remained in the Duplate's files.

Q. This also remained in the Duplate's files?

[fol. 91] A. Yes, sir.

Q. Referring again to Exhibit 1, I call your attention to the fact that there is a description on there, as follows: "Bill No. 40." Whose bill No. 40 is that—the Pittsburgh Plate Glass Company's or the Duplate Corporation's?

A. That would be Duplate Corporation.

Q. That would be their Duplate Corporation bill number?

A. Apparently so. I never knew it was on there.

Q. Then do you know whose bill number it is?

A. No. I said I supposed it was.

Q. Who would know?

A. Mr. Lepore, the man who made it up—Ernest Lepore.

Q. Would Mr. Houser have that information?

A. No, he would not.

Q. I think you told me, didn't you, that Exhibit No. 1 became the basis for the cross-entries in the Pittsburgh Plate books and the Duplate books as well?

A. Yes, sir.

Q. Now, you told me also, I think, that the documents, of which Exhibit No. 4 is typical, remained in the files of Duplate Corporation?

A. Yes, sir.

Q. Will you then please explain how the documents, of which Exhibit No. 4 is typical, could be the original invoice to Pittsburgh Plate Glass Company, since they never received it?

A. They are used in compiling the Duplate reports as well as the Pittsburgh Plate Glass Company's reports.

Q. They are used interchangeably by both companies?

A. Yes, sir.

Q. Did you bring with you the purchase orders for raw material, covering the four that I picked out yesterday, from your large book of purchase orders?

[fol. 92] A. Yes, I have those.

Q. Will you let me have those?

A. Here are the purchase orders, the original invoices, the voucher and the cancelled check for each.

Q. I show you a set of documents which you have produced, and ask you to explain what they are.

A. The first is a copy of the original purchase order, No. 478½, to Rasner & Dinger, for one bag clamp. We then have the original invoice for this bag clamp from Rasner & Dinger Company and receipted voucher, general voucher No. 818, Creighton sub-number 767, for $7.74, and cancelled check No. 680, for $7.74.

Q. The first paper in this series you have designated as the original purchase order?

A. Copy of the original.

Q. The original having been sent to the vendor?

A. Yes, sir.

Q. And this kept in the records of Duplate Corporation as one of its records?

A. In the purchasing department at Pittsburgh.

Q. Purchasing department of whom?

A. Of the Pittsburgh Plate Glass Company.

Q. At Pittsburgh?

A. Yes; as they did the purchasing for Duplate.

Q. Then the yellow sheet in this series you have designated as the voucher of Pittsburgh Safety Glass Company?

A. Yes, sir.

Q. That is kept in the files of the Pittsburgh Safety Glass Company?

A. Files of the assistant treasurer of the Safety Glass Company.

Mr. O'Shea: I offer as one exhibit the four documents identified by the witness, as Plaintiff's Master's Exhibit No. 5.

* * * * * * *

[fol. 93] Q. Mr. McHenry, you have produced a document here. Will you please identify what that document is?

A. This is original order No. 4854, of the Fleetwood Body Company, for eight pieces of Duplate glass.

Q. That is an order to Pittsburgh Plate Glass Company?

A. Yes, sir.

Q. And is the order referred to on Master's Exhibit No. 2?

A. Yes.

Mr. O'Shea: I now offer in evidence the document identified by the witness, and ask to have that marked as Plaintiff's Master's Exhibit No. 2-A.

Q. I show you a document and ask you if you can identify that?

A. This is a copy of invoice from the Pittsburgh Plate Glass Company against the Duplate Corporation for glass purchased by the Duplate Corporation.

Q. I show you another document, and ask you if you can identify that?

A. This is a copy of an invoice from Pittsburgh Plate Glass Company to Pittsburgh Safety Glass Company for glass delivered in the month of June, 1928.

Q. Both of the documents which you have just identified are true copies of the invoices?

A. They are.

Mr. O'Shea: I now offer in evidence the two documents identified by the witness, and ask that they be marked as Plaintiff's Master's Exhibits 6 and 6-A.

Q. Do you know the prices at which du Pont Viscoloid Company sold its pyralin to Duplate Corporation?

[fol. 94] A. Only the prices that are shown on the invoice.

Q. Will you look at those invoices and tell us what that price was?

A. That is billed at various prices, depending on size of sheet, finish and thickness.

Q. Does pyralin have a market price for all purchasers with those variations you have mentioned?

A. I am not able to say.

Q. Would there be anyone in your organization who would know that fact?

A. The purchasing department would probably know what other competitors' prices were—that is, competitors of du Pont Viscoloid.

Q. Do you know whether Duplate Corporation had any agreement or understanding with du Pont Viscoloid Company to buy their—that is to say, Duplate's—pyralin under the market price, if there was a market price?

A. I know of no understanding.

Q. The only one who would know whether there were such an understanding would be someone connected with the purchasing department of the Pittsburgh Plate Glass Company?

A. Or Mr. Wherrett. Mr. Wherrett would know.

JOSEPH HOUSER, a witness produced on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. Mr. Houser, I show you five sheets, and ask you if you can identify what those are?

A. This is made up by the warehouse——

Q. Just tell what it is. Is it a formed used by the Duplate Corporation?

[fol. 95] A. It is a form used by the Duplate Corporation for shipments. It is an order blank, but at the same time it is used for shipments.

Q. As I understand, it originates in the warehouse?

A. That is right.

Q. And is made out in an original and quadruplicate copies as is indicated in the five sheets?

A. Yes, sir.

Q. Now, after being made out in the warehouse, where does the original go to?

A. The warehouse sends the original, the duplicate, the shop ticket, and the triplicate to the general office.

Q. And keeps for itself the quadruplicate?

A. That is right.

Q. Now, where you say "general office," you mean general office of Pittsburgh Plate Glass Company?

A. Pittsburgh Plate Glass Company.

Q. Now, what does the Pittsburgh Plate Glass Company do with the original, the duplicate, the shop ticket and the triplicate?

A. They keep the triplicate and forward the original and the duplicate and the shop ticket to the factory.

Q. At that point there is nothing on the ticket except the amounts and description of the order?

A. That is all.

Q. No prices?

A. No prices.

Q. When you say "the factory," you mean the factory of Duplate Corporation?

A. Yes, sir.

Q. Now, what does the factory of the Duplate Corporation do with the original, the duplicate and the shop ticket?

[fol. 96] A. The original is kept by the shipping clerk; the duplicate is kept by Mr. Powell up there.

Q. What is his title?

A. What Mr. Powell's title is, I couldn't tell you that.

Q. Is he in the bookkeeping department?

A. He is the head of the production department.

Q. What becomes of the shop ticket?

A. That goes to the shop, to the inside of the factory, to work from.

Q. The shop ticket is used as the order from which the Duplate factory makes up the goods to be shipped on that order?

A. That is right.

Q. And the production manager keeps the duplicate?

A. That is right.

Q. And what did you say becomes of the original?

A. The shipping clerk has the original.

Q. The shipping clerk has the original, and uses the original as his shipping instructions?

A. That is right.

Q. There are no prices on this at that time?

A. No, sir.

Q. The duplicate remains with the Duplate Corporation?
A. Yes, sir.
Q. And the original, what happens to that?
A. It is returned to the Pittsburgh Plate's general office.
Q. Are the prices then put on the original?
A. Yes, sir.
Q. By whom?
A. By the man in charge of pricing.
Q. And who is he?
A. Why, at present it is Mr. Ross and Mr. Donaldson.
[fol. 97] Q. And they are employees of what company?
A. Pittsburgh Plate Glass Company.
Q. And as I understand it then, an employee, after the prices are put on the original, an employee of Pittsburgh Plate Glass Company uses this original to make cross entries in a ledger belonging to the Pittsburgh Plate Glass Company. Do you know whether that statement is the correct statement of the facts?
A. Well, what this is used for—it is billed right on that ticket. After the prices are on that, it is figured out—everything complete is figured out.
Q. The total is figured out of the prices?
A. The total, and then, it is placed in a binder for the accounting department.
Q. Accounting department of what company?
A. Pittsburgh Plate Glass Company.
Q. And then is posted by the employees of Pittsburgh Plate Glass Company to a ledger in the Pittsburgh Plate Glass Company?
A. Yes, sir.
Q. And similarly posted by an employee or employees of Pittsburgh Plate Glass Company to a ledger of Duplate Corporation?
A. Well, how it is posted——
Q. If you don't know, say so.
A. I don't know that.
Q. You do know, however, it is posted in a ledger of Pittsburgh Plate Glass Company?
A. Yes, sir.
Q. Is that the customers' ledger or a general ledger?
A. Well, it is—just what it is I don't know.
Q. You don't do the work?
A. I don't do the work.

Q. All you know is, it is a ledger, and all you know of that is from your contact with that department?

A. Yes, sir.

[fol. 98] Mr. O'Shea: The documents, consisting of five sheets, and described by the witness as the order blank and shipping instructions, is offered in evidence as Exhibit 7, with the request that the pink slip be marked 7, duplicate 7-A, shop ticket 7-B, and triplicate 7-C, and the quadruplicate 7-D.

Q. What position do you occupy?

A. Billing.

Q. For the Pittsburgh Plate Glass Company?

A. Yes, Pittsburgh Plate Glass Company.

Q. Do you know anything about the manner in which Exhibit No. 1 is used or treated?

A. No.

E. A. Lapore, a witness produced on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. Are you an employee of Pittsburgh Plate Glass Company?

A. Yes.

Q. And what position do you occupy there?

A. I am general bookkeeper for the Duplate Corporation, and Colonial Chemical Division.

Q. You work for the Pittsburgh Plate Glass Company as the general bookkeeper for the Duplate Corporation?

A. Yes, that is right.

Q. Are you familiar with Plaintiff's Exhibit No. 1?

A. Yes.

Q. That is what is called in your organization as a recap of monthly sales?

A. No, that is not the recap.

Q. You describe what it is.

[fol. 99] A. That is the bill against the Pittsburgh Plate Glass Company.

Q. That constitutes a bill against the Pittsburgh Plate Glass Company?

A. That is right.

Q. Whose bill?

A. Duplate Corporation's bill.

Q. And to what books do you post that? It is posted in some book, is it not?

A. Yes, it is placed in the general ledger of the Duplate Corporation.

Q. You say "placed." Do you mean posted?

A. Yes, posted. The Pittsburgh Plate Glass Company is charged and the various accounts are credited there. That is, there are accounts carried for each one of the different kinds of glass on there.

Q. And the various entries on Exhibit 1 are posted into the books of the Duplate Corporation?

A. That is right.

Q. Are they posted any place into a book of the Pittsburgh Plate Glass Company?

A. Yes.

Q. Do you do that work, too?

A. No.

Q. Who does that work?

A. Well, that is handled by two men—Mr. Fleming and Mr. Lazer.

Q. Do you know what that posting consists of; that is to say, the posting from Exhibit 1 to the Pittsburgh Plate Glass Company?

A. You mean, in the Pittsburgh Plate Glass Company's books?

Q. Yes.

A. Well, it is merely placed in there as a credit to the Duplate Corporation.

Q. As a credit to the Duplate Corporation?

A. Yes.

[fol. 100] Q. And the notation on there, "Bill No. 40," indicates that to be the bill of the Duplate Corporation?

A. That is right.

Q. And is addressed, of course, to Pittsburgh Plate Glass Company?

A. Yes.

Q. Did you make this up?

A. Yes.

Q. And from what do you make it up?

A. The sales tickets are analyzed monthly, and of course if we make an item of each ticket, it will take quite a bit of space there, so all prices are grouped together and extended on one bill. That is this bill.

Q. Where you speak of sales tickets, you refer to——.

A. The order ticket.

Q. You refer to the tickets which are marked in this case as Master's Exhibits 2 and 3?

A. That is right.

Q. And which come in in large numbers each month?

A. Well, they come in daily.

Q. And each month there is an accumulation of a large number of them. Is that correct?

A. That is right.

Q. And you summarize what appears on the face of each of those?

A. No; what appears on the back.

Q. You don't summarize what appears on the back on that one?

A. Yes; total amount of invoice less 3 per cent.

Q. Is that what this is?

A. Yes. You will find down there so many feet for a certain amount, less 3 per cent., which will be the gross amount on this.

Q. The summary of the front?

A. Yes.

[fol. 101] Q. So that you really summarize both the front and the back?

A. Yes.

Q. Are they in all cases identical?

A. No; there are a few exceptions in there.

Q. What are those exceptions? Just describe what the exceptions are.

A. Well, in the case of warehouses, the Pittsburgh Plate Glass Company bills their warehouses at a discount of 3 per cent., and in some cases where the order is not handled by the warehouse—that is, they ship direct and the order is handled in the Pittsburgh Plate Glass Company's general office, the order goes out direct, and on the back there would be a discount which would make a difference of the discount on the back. I think that one you had there was an instance of that.

Q. Which one?

A. This first one you showed me. The Fleetwood, you will notice on the face—there is no discount on the back. It says, total amount, 3 per cent.

Q. That statement on the back, "Total amount of invoice, less three per cent," means that the 3 per cent. has been granted to the customer?

A. No; to the Pittsburgh Plate Glass Company. The customer doesn't get that.

Q. In these warehouse cases, as is typified by Master's Exhibit No. 3, you don't carry over into Master's Exhibit No. 1, the boxing charges?

A. No.

Q. This Plaintiff's Exhibit No. 1 is the invoice from Duplate to Pittsburgh Plate Glass Company, is it not?

A. Yes, sir.

Q. Now, there are cases, as I understand, such as is typified by Master's Exhibit No. 2, where the order comes direct from the customer to Pittsburgh Plate Glass Company's general offices, and does not go through one of Pittsburgh [fol. 102] Plate Glass Company's warehouses?

A. That is right.

Q. And such case as that is typified by this Master's Exhibit No. 2?

A. That is right.

Q. Now, in such cases as that, who makes up the form?

A. The form is made up in the sales office of the Pittsburgh Plate Glass Company and at the general office. They have a sales office up there.

Q. Is that made up in an original and duplicate, triplicate, shop ticket and quadruplicate?

A. The quadruplicate in those instances is left off.

Q. And in those instances of orders direct to the Pittsburgh Plate Glass Company, then the Pittsburgh Plate Glass Company keeps these triplicates in its office?

A. Yes.

Q. And the other three are forwarded to the Duplate factory, and the system from there on is as it is in the case where it originates in the warehouse?

A. Exactly the same.

Q. The Pittsburgh Plate Glass Company's invoice to its customer is taken from a sheet such as Master's Exhibit No. 2?

A. Yes. Mr. Houser handles that. It is typed right from that.

PHILIP F. DATZ, a witness produced on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. What is your occupation?

A. At the present time, chief accountant at Ford City, Pittsburgh Plate Glass Company.

[fol. 103] Q. Were you employed by——

A. Pittsburgh Plate Glass Company and the Duplate Corporation, as chief accountant.

Q. Were you employed by the Pittsburgh Plate Glass Company in the year 1928?

A. I was.

Q. In what capacity?

A. As chief accountant.

Q. And you were located where?

A. Creighton.

Q. Are you familiar with the so-called Schedule "J" constituting one of the records of Pittsburgh Safety Glass Company?

A. I am, yes, sir.

Q. Did you make up those so-called Schedules "J"?

A. I did.

Q. And from what source did you obtain your information, with respect to Schedule "J"?

A. For feetage, production feetage, through physical inventory, and for value through labor and material purchased. The form "J" constitutes the feetage and value.

Q. Did you then post the information obtained in Schedule "J" to a book kept in the accounting department?

A. Books of original entry—the sundry journal.

Q. You posted from Schedule "J" to the sundry journal?

A. Yes, sir.

Q. Now, will you turn to Schedule "J" for the month of September, 1928?

A. Yes, sir.

Q. I call your attention to an entry on that schedule, which reads as follows: "Order cutting and stock loss," and opposite that, "92,038 feet."

A. Right.

[fol. 104] Q. Will you explain what is meant by the phrase "Order cutting and stock loss"?

A. Polished plate is bought and placed in stock; then it is cut in the cutting department for the assembling department, and any loss that we have in breakage there, due to the handling or defective cutting, is charged to this "order cutting loss."

Q. Why is it necessary to cut the glass?

A. Glass is bought in a size just a little above the required finished windshield, and due to the process of pressing, there may be shrinkage there.

Q. You are not up to the pressing department yet.

A. I know; but you asked why it is bought in that size, why there is that loss. That is why.

Q. I asked you why there is any occasion for any cutting loss in the stock department?

A. Well, it is carried in the cutting department. All of our glass is cut in this cutting department before it goes to the assembling department.

Q. It is first in stock?

A. Yes, it is first in stock, and then it is taken out of that stock and cut. The stock is carried in the cutting department.

Q. So all the cutting losses are charged to the stock department?

A. To the stock department; yes, sir.

Q. And are we to understand from that entry in Schedule "J", for the month of September, 1928, that you sustained losses to the extent of 92,038 feet?

A. Yes, sir.

Q. Do you know how much of that was due to cutting?

A. That would be hard to say. That was carried as one record.

Q. And was that glass entirely destroyed.

A. Yes, sir.

[fol. 105] Q. Was there no possibility of salvaging any part of it?

A. That part is not sold, it is reclaimed as cullet, and returned to the Pittsburgh Plate Glass Company.

Q. It is reclaimed as cullet and returned to the Pittsburgh Plate Glass Company?

A. Yes, sir.

Q. Do you receive a revenue from that?

A. Yes, sir.

Q. What is the rate of the revenue?

A. That I don't recall. It is so much per ton.

Q. Now, Mr. Datz, I don't quite understand how you could obtain a loss of this magnitude from your stock, simply because of the cutting operation. Can you describe to us what the cutting operation is?

A. Yes, I can. That depends on the size of the windshield. The glass is bought a little larger than the actual size required; then two plates are cut down to be matched equal, and included in this figure might be an inventory adjustment, shortage of glass, which we consider as a stock loss.

Q. In other words, do I understand you to say now that included in the 92,038 feet might be an error to the effect that while you thought you had received and had in stock some part of the 92,038 square feet, when you came to make a physical inventory, you found you did not have that much glass in stock?

A. We did not.

Q. Is my statement correct?

A. This far: not that we had thought that we had received it; we actually received it, but upon taking a physical inventory we found that the stock might have been broken in previous months, but to adjust our records to the physical inventory, we include this shortage.

Q. Well, this all relates to the current month, doesn't it? Look at your records.

[fol. 106] A. It relates to the current month, inasmuch as we have adjusted to our physical inventory in this particular month.

Q. You had entries, of course, in previous months, for breakage?

A. Yes; but not including an inventory adjustment.

Q. But the fact is, you had previous entries for breakage which are not called breakage. Will you look at your previous month, and see if that is not the fact? Take May.

A. That includes breakage in the month of May.

Q. How many feet?

A. You mean the breakage alone?

Q. Yes.

A. 5861 feet.

Q. Of breakage in the month of May, for 1928?

A. Yes, sir.

Q. Now, take June. What is the breakage on there?

A. 1928 feet.

Q. July, what was the breakage?

A. 984 feet.

Q. Now, getting back to September again, I wish you would look at the entry on your Schedule "J" for September, and explain to me what is meant by the entry there which reads, "Order Cutting (1/1 to 1st current mo.)," and opposite that entry the figures 1482.

A. Order cutting and stock loss, 1/1 to first current month—"mo." abbreviated for "month"—this form "J" is an accumulative form "J"; that is, accumulative abstracts of stock in departmental accounts, and we carry our figures forward from month to month.

Q. So it means from the first of January, 1928, to the first of the current month, your inventories were presuma-
[fol. 107] bly correct, and that the loss occurred from the first of the current month through that month, does it not?

A. Well, 1482 feet did not cover the entire loss from the first of the year until the first of September.

Q. Well, does not that seem to indicate that it did?

A. That is the loss reported and this loss——

Q. What is the loss?

A. 1482 feet. That is the loss that was actually reported; but the actual loss, after physical inventory was taken, was found to be an additional figure of 92,038 feet.

Q. You can't tell when that occurred, whether it was in the current month or some other month?

A. That may be in any of the previous months.

Q. It may be, but you don't know it is?

A. No.

Q. The only information you know is that your records show that during May, June and July, January, February and March, that you had a reported loss of 1482 feet, and that when you came to close your books as of September 30th, you had an additional loss of 92,038 feet?

A. That is right.

Q. That is all you know about it?

A. That is all I know. That substantiates the statement I made before.

Q. Now, is it not a fact that you had a physical inventory at the end of September, 1928?

A. Yes, sir.

Q. Do you remember that fact?

A. We did take a physical inventory.

Q. How often do you take a physical inventory?

A. Once a month we were to take a physical inventory, but due to being short-handed up there, there wasn't any physical inventory taken.

[fol. 108] Q. Until September?

A. Until September—and the fact the stock might not be in any condition to take a physical inventory.

Q. Why would the stock not be in condition?

A. Due to the method of operating.

Q. You have a stock loss there?

A. It may have been in the stock room, and it may have been in the tunnel from the Pittsburgh Plate Glass Company to the Pittsburgh Safety Glass Company, as this glass was transported probably half a mile from the Pittsburgh Plate to the Pittsburgh Safety.

Q. You mean by that that it was possible it was not received by the Duplate?

A. It was all actually received, because it was not paid until it was checked against the receiving record.

Q. And of course if it were broken in transit in this half mile——

A. That was replaced by the Pittsburgh Plate Glass Company.

Q. The only breakage that the Duplate Corporation would be responsible for would be after delivery?

A. After delivery.

Q. Now, coming back to this cutting loss again, how did you determine whether the loss was cutting or breaking?

A. Through a record that was kept at the plant.

Q. Is that a current record?

A. I am not familiar with the records they are keeping at the present time.

Q. I mean at this time.

A. At this time—yes, it was a current record at that time.

Q. From day to day?

A. Yes, from day to day; reported by the inspectors, showing the original size of the glass paid for, and the size [fol. 109] of the cut from the original size, the balance being the cutting loss.

By the Master:

Q. What do you cut that glass with, Mr. Datz?
A. Do you mean the tool?
Q. Yes.
A. For a while they used the diamond, and then they used also the Red Devil Wheel.

By Mr. O'Shea:

Q. Now, Mr. Datz, of course, in the sale of laminated glass, you charge for the full block size, as testified to by Mr. McHenry yesterday, so that ordinarily there is no cutting loss in the glass. Is that a fact?
A. We charge for the size of the glass that is ordered by the customer, but we would have to order in many cases glass in excess of the size ordered by the customer.
Q. Excess quantities?
A. Not in quantities—in size. You would have to allow certain dimensions for this cutting. For instance, in cutting the contour, you would have to allow a little bit to get that contour for your corners.
Q. But you charge for the full size to your customer?
A. Not in the size we bought from the Pittsburgh Plate Glass Company.
Q. Didn't you buy in standard sizes from the Pittsburgh Plate Glass Company?
A. No; sizes cut to order.
Q. You bought in sizes cut to order?
A. Yes, sir.
Q. Aren't those sizes cut to order standard sizes of glass?
A. I will illustrate: A windshield 15½ inches wide, 48 inches long—I will change that. I will make it 16 inches [fol. 110] wide, finished size 16 inches wide, 48 inches long. To cut that glass, we would have to buy from the Pittsburgh Plate Glass Company a 16½ by 48. We would bill the customer for finished light 16 by 48. We would have a loss there, due to the method of billing by the Pittsburgh Plate Glass Company, of an inch and a half. They would charge us for the next bracket size there, which would be 18 inches.
Q. Who would charge you? The Pittsburgh Plate Glass Company would charge you for 18 inches?
A. Yes, 18 inches.

Q. Don't they have a 16-inch?

A. They don't carry a 16½-inch in stock. They carry an 18-inch in stock and cut it out of an 18-inch.

Q. As a matter of fact, when you sell a 14⅛ by 46⅛ finished light, you charge the customer for a 16 by 48 piece of glass, do you not?

A. Yes, sir.

Q. And similarly, when you make a finished light of 15⅛ by 47⅛, you charge the customer for a piece of glass 16 by 48?

A. Yes, sir.

Q. Now, then, it is in only rare instances that there is a situation where you have a finished light 16 by 48, which you cut from a higher bracket?

A. That all depends on the size ordered by the customer.

Q. I say, those are rare instances?

A. I don't know.

Q. It would have to be exact to even an inch?

A. If they order a 16 by 48, you give them 16 by 48.

Q. And charge them 16 by 48?

A. Yes. But we would buy, as I said before, an 18 by 48, to furnish that light.

Q. Well, what is the highest standard size that the Pittsburgh Plate Glass Company makes?

[fol. 111] A. That I couldn't say. I am not familiar with the brackets that they carry.

Q. Well, what is the next bracket that they carry above the 16 by 48?

A. It would be an 18 by 48.

Q. So if you had an order of 18 by 48, you would use the light that they furnish you in the higher bracket?

A. If we happened to have it, yes.

Q. Well, you would have it, wouldn't you, in an efficient organization? If you had any substantial orders, 18 by 48, or if the laminated glass customer was demanding orders of finished lights 18 by 48, and the glass company supplied glass at those dimensions, 18 by 48, you would keep orders with the Pittsburgh Plate Glass Company at 18 by 48, wouldn't you?

A. For that particular order, yes.

Q. For that order?

A. Yes.

Q. There would be no cutting loss, then, in either 18 by 48 or 16 by 48?

A. There would, in this particular order.

Q. Which particular order?

A. Speaking of this 16 by 48, you would have to order an 18 by 48 to get the size out.

Q. Why?

A. Sixteen wouldn't be wide enough to cut your glass out.

Q. You would order 18 by 48?

A. Sure.

Q. Now, then, having that on hand, and you had orders from customers, for 18 by 48, you would use 18 by 48?

A. We wouldn't have orders from customers for that size. When we order 18 inches, that is ordered for a specific order, not to be applied on another order.

[fol. 112] Q. You mean, you don't keep this standard size in stock?

A. No, sir.

Q. You could keep them? Your source of supply was right under the same roof in this period, wasn't it?

A. That is the policy of Pittsburgh Plate to carry these stocks? We don't govern their stocks. They carry the stocks they think are best and are going to be used.

Q. Do you know if the Pittsburgh Plate carries an 18 by 48?

A. They carry that in stock if they are able to produce it.

Q. Well, are they?

A. They are at times, depending on the quality of the glass they get out.

Q. What has the quality of the glass got to do with the size of it? We are talking about sizes.

Mr. Christy: This is immaterial.

A. That is part of the plate glass business to get your different sizes out of the sheets that you actually cast and roll and polish.

Q. Well, the Pittsburgh Plate Glass Company has different bracket sizes, has it not?

A. Yes, sir.

Q. And the laminated glass business sells its glass at those bracket sizes. Isn't that a fact?

A. Yes, sir.

Q. So that except in extraordinary cases, there is no necessity for a cutting loss?

A. That all depends on the size.

Q. Now, as a matter of fact, in this glass which you have in your Schedule "J" for September, and which you designate as a cutting and stock loss, that is glass that never got into laminated glass and was never sold as laminated glass. That is correct, is it not?

[fol. 113] A. That is correct.

Q. Now, on that Schedule "J," down in the assembling department, you have an additional loss for September. Is that correct?

A. Yes, sir.

Q. And that too is designated as an order cutting and stock loss. Is that right?

A. You are referring to the 11,000 feet?

Q. No, I am referring to the 486 feet and 9 inches.

A. In what month?

Q. September. Let us pass that up. In the pressing department on your Schedule "J," it indicates an additional loss of 113,904 feet and 7 inches. Is that correct?

A. That is correct.

Q. Now, that is double lights?

A. That is right; that is double lights.

Q. So that the total glass in that would be twice that?

A. Right—227,000 feet.

Q. 227,000 plus?

A. Yes.

Q. And in that as well would be an alleged loss for celluloid?

A. Right.

Q. Now, going down to your edging department, that Schedule "J" for September, 1928, shows losses of how much? It is in several items there, is it not?

A. Yes, it is.

Q. And what do they total up?

A. Current month, edging department loss is 24,828 feet plus.

Q. So that on your Schedule "J" you lost out of stock, in one way or another, 92,038 feet of glass, and you lost in the pressing department 227,000 square feet of glass, and

you lost in the edging department 49,000 square feet of glass plus.

[fol. 114] A. Right.

Q. Now, all those losses were due to order cutting and stock losses all the way through?

A. No, sir. Operating losses; after the cutting department, the balance are operating losses.

Q. So that in the total of that month what were glass losses stated in square feet, from your Schedule "J"?

A. You mean, you want my total from Schedule "J" here?

Q. I want to know what Schedule "J" shows as the total loss of glass during the month of September?

A. Up until the finished stock—that doesn't include the loss in stock on finished stock—that is, operating alone—369,502 feet.

Q. Now, how much did you lose in finished stock?

A. In glass feetage?

Q. Glass feetage.

A. There isn't any shown in that particular month.

Q. You didn't lose any?

A. No.

Q. What was your production in that month, as shown by Schedule "J," in glass feetage?

A. Passed to finished stock, in glass feetage, 432,478 feet plus.

Q. So that in that month you produced 432,478 feet plus, and in the same month you lost 369,502 square feet of glass?

A. Right.

Q. Now, in your pressing department losses, your cost system provided for the taking out of process of such amounts as are shown under the pressing department losses?

A. Yes, sir.

Q. And on your cost system there, you give no value to that glass that is taken out of process?

A. Right.

[fol. 115] Q. Now, that glass which in the month of September, 1928, amounted to 113,904 square feet of laminated glass at that point was never sold, was it?

A. No, sir.

Q. And the same is true in the losses listed there in the edging department, amounting to 24,828 feet, and when I

say "there," I refer to the Schedule "J" for September, 1928.

A. That is right.

Q. That was taken out of process at the edging department and never sold?

A. At this point.

Q. Was it ever sold?

A. That is hard to say. It may have been placed in stock and cut down to a smaller size.

Q. Will you look at that and find out whether you ever took it back at its value?

A. To identify this particular glass that was taken out here would be almost impossible to say; but we have reclaimed the glass and put it back into operation.

Q. You have some salvage in there, you mean?

A. Yes, sir; at a value.

Q. And the whole salvage amounts to 5860 feet. Is that right?

A. Yes, sir.

Q. Now, that was all you put back into process?

A. Not from this loss.

Q. From any loss, all through the whole month, all that you salvaged from all that 369,502 square feet was twice 5860 square feet?

A. That is right.

Q. That was all you salvaged out of all the losses at this particular point?

A. At this date. It may have been salvaged at some future date.

Q. If it was salvaged at a future date, it will appear on a later month?

[fol. 116] A. Right.

Q. Up to this point, the only thing that was salvaged is the twice 5860 feet?

A. Right.

Q. And all the balance is glass that was never sold?

A. Never sold.

Q. Now, take your next month, October, 1928. You have the stock loss there that you designate as stock loss only. Is that correct?

A. Yes.

Q. Will you explain what a stock loss is?

A. It would be a breakage in the actual stock.

Q. Only breakage?

A. Yes, sir; breakage only in the handling.

Q. That breakage amounted in the month of October to 14,567 square feet. Is that right?

A. Yes, sir.

Q. You didn't get a bull in the stock room that month?

A. I don't know. That can happen in the glass factory.

Q. It can?

A. Not a bull, but somebody with an electric truck.

Q. Did that happen?

A. I don't know that it happened, but it can happen, that a man can bump over with an electric truck occasionally.

Q. Occasionally?

A. Yes, sir.

Q. What do you consider occasionally?

A. Not being an operating man, I don't know how often it happened, but I do know that it does happen.

Q. You can define the word "occasionally", whether you are an operating man or not. Once a month would you call occasionally?

[fol. 117] A. Oh, no. I wouldn't say once a month. It may happen once or twice a week, and again it may not happen again once in two weeks.

Q. Do you think it would happen once in two weeks?

A. That I can't say.

Q. If you were employing a man who was knocking over a rack of glass once in two weeks, destroying 14,567 feet, what would you do with him?

A. Fire him.

Q. Now, in your so-called cutting department for that same month of October, 1928, you suffer a loss of 23,801 square feet.

A. Right.

Q. How is that entered?

A. As cutting loss, explained before.

Q. I mean on there. It just says "cutting loss"?

A. Cutting loss.

Q. And that you define as you defined before, that the cause of the necessity of cutting——

A. Larger brackets.

Q. Larger brackets down to smaller brackets?

A. Right.

Q. Now, in your pressing department that month, you had a loss of 99,529 square feet of laminated glass?

A. Laminated glass, yes.

Q. So that the glass loss would be double that?

A. Right.

Q. Now, here again, this 99,529 square feet was taken out of process at no value?

A. That is correct.

Q. Although the original glass had been put into process at the prices which were paid by Duplate to Pittsburgh Plate Glass Company. Is that correct?

A. Yes, sir.

Q. And this 99,529 square feet of glass represents glass also that was never sold?

[fol. 118] A. That is correct.

Q. And in your edging department for that same month, you suffered a loss in laminated glass of 26,136 feet.

A. That is correct.

Q. Which was taken out of process at no value. Is that correct?

A. Taken out of process at no value.

Q. And never sold?

A. Never sold.

Q. And in that month you salvaged 9095 square feet?

A. Right.

(Recess until 1:30 o'clock P. M.)

Afternoon Session

PHILIP F. DATZ resumes the stand.

Direct examination (continued).

By Mr. O'Shea:

Q. On Schedule "J", for October, 1928, you show a loss of 14,567 feet, and call that just stock loss. Is that correct?

A. That is correct.

Q. What is your explanation of that sort of a loss?

A. That is similar loss to what has been shown on the previous forms "J."

Q. You mean, similar to the 92,038 feet in September?

A. Yes, sir.

Q. Well, didn't you say that included in the 92,038 feet for September there was a cutting loss?

A. Yes, sir.

[fol. 119] Q. Well, is there a cutting loss included in this 14,567 feet, which is specified in Schedule "J", for the month of October?

A. Those two figures were kept separate in the month of October, but the combined total of those two figures is the same figure as 92,038 feet shown in September.

Q. We only have one figure so far in October; that is the 14,567.

A. We show specifically between a cutting loss and stock loss, but the combined total of those two——

Q. So that in October you did show, under the heading "Cutting loss," a separate, distinct cutting loss, in addition to the 14,567 feet?

A. That is correct.

Q. So that there is no cutting loss in the 14,567?

A. No, sir; stock loss only.

Q. What do you mean by stock loss, in that case?

A. Breakage in stock.

Q. That all means breakage in stock?

A. Yes, sir; breakage in stock.

Q. Now, 14,567 square feet would constitute approximately a short carload of glass, wouldn't it?

A. I am not able to answer that.

Q. Do you know how much goes into a carload?

A. No, sir, I do not; because I never had any contacts with a carload of glass.

Q. How do you take inventory?

A. Measuring the actual size of the glass, thickness, and the number of plates.

Q. You determine the number of plates by a stick or measure, don't you?

A. No, sir; actual count per plate.

Q. You count the plates?

A. Yes, sir.

Q. How many plates would 14,567 square feet amount to?

[fol. 120] A. That is a rather hard statement to answer right now, because I don't know how many different sizes might be in the 14,000 feet. There might be fifty or seventy-five different sizes in that.

Q. Wouldn't it run up to four, five or six thousand sheets of glass?

A. Assuming now that the average is four feet, which is approximately an average for the windshield sizes, that would run about 3500 plates.

Q. Now, the sheets of glass for windows would be smaller than the windshields, wouldn't they?

A. Not on the average.

Q. Are they bigger?

A. Well, that all depends on the make of the car. You will find there are no two manufacturers use the same size door lights. We call that a door light.

Q. Are the door lights substantially bigger than the windshield lights, any of them?

A. Some are and some are not.

Q. What I mean by substantially, I mean three or four square feet bigger?

A. No, sir.

Q. They don't run as much as three or four square feet bigger?

A. No, sir, they don't.

Q. Do they run as much as two square feet bigger?

A. Offhand, I have forgotten the size of the door lights, and I wouldn't be able to say.

Q. You are sure they don't run as much as four square feet larger?

A. They don't run as much as four.

Q. Would you say they run as much as three square feet larger?

A. Not until I have the size of the door lights.

Q. Is there a typical door light shown on Master's Exhibit No. 2?

A. Yes.

[fol. 121] Q. Would you say those door lights are larger than the windshield lights you had in mind in the previous questions, or smaller?

A. Smaller by one foot.

Q. So then if this breakage of 14,567 feet was for door lights, it would run much higher than 3500 lights, wouldn't it?

A. Yes, it would.

Q. Now, can you give us any help as to how you determined that this 14,567 square feet constituted breakage in the month of October, 1928?

Mr. Christy: Mr. Master, isn't this developing into cross-examination? These are the plaintiffs' witnesses.

Mr. O'Shea: It is all cross-examination.

Mr. Christy: It is unnecessary. The thing is on record.

Mr. O'Shea: I want to try to get some explanation for it.

The Master: The objection is overruled.

Q. (Question read.)

A. Yes. Through a daily record.

Q. You got a report of that, did you?

A. Through our production department we have a daily record of all the glass that is broken in the cutting department.

Q. This isn't in the cutting department?

A. This is in the cutting department.

Q. It is before cutting. You haven't done any cutting on it yet.

A. Our stock is carried through the cutting department.

Q. You haven't done any cutting on it yet?

[fol. 122] A. You are stocking it. You are taking it from the company you are buying it from and putting it into stock.

Q. Such as was broken by cutting is in a separate item on that Schedule "J," and amounts to 23,801 square feet?

A. That was cutting alone.

Q. That was cutting alone? This is breakage?

A. Breakage in stock.

Q. Of the raw glass?

A. Breakage in stock.

Q. Not breakage caused by cutting. Are we clear on that?

A. Yes, sir; clear on that. In handling glass and putting it into stock, I don't care who the company is handling it, they are going to have an excessive amount of breakage in storing that glass, and that is where we get this figure.

Q. Did you have any excessive amount of breakage in the months of May, June and July?

A. The same year?

Q. The same year. Or in the months of February, March, April and May, in the year 1930?

A. In July, there was only shown there 984 feet. That is due to the records that might have been turned in, the figures given to the accounting department as glass broken in stock. However, these other figures are based on physical inventories, that have been taken at the end of the month.

Q. Didn't you take a physical inventory at the end of July?

A. No, sir; probably not.

Q. Go to 1930. Were you taking a physical inventory at the end of the months of that year?

A. Yes, sir.

Q. Let us take May, 1930. What do your records show is the breakage in that month?

[fol. 123] A. Are you referring to the thirty-five feet there —loss in stock?

Q. I am asking you what your record for May, 1930, shows as a loss in stock?

A. Thirty-five feet.

Q. And that you interpret to be breakage, as I understand?

A. Interpret that to be breakage; yes, sir.

Q. And you took a physical inventory in that month?

A. I didn't take the physical inventory in this particular month, but I am certain an inventory was taken in this particular month.

Q. Well, that statement applies to this month up here in 1928, too?

A. In that particular case, I had supervision then over the inventory.

Q. Did you take the physical inventory?

A. No; but the people who worked under me did. I had supervision over it, but in this particular case I didn't have.

Q. But the physical inventory was being taken, and there was somebody having supervision over it in 1930?

A. Yes.

Q. Who was he?

A. The present chief accountant, H. C. Ter Bush.

Q. How long has he been with you?

A. With the Duplate Corporation, you mean?

Q. Yes.

A. Or the Pittsburgh Plate Glass Company?

Q. He is there longer than you, you say?

A. No, not with this concern. He came about March, 1930.

Q. Who was he with before that?

A. Pittsburgh Plate Glass Company.

Q. Well, now, were you there in September, October, November and December, 1929?

[fol. 124] A. Yes, sir.

Q. Well, what breakage did you have during those months? Physical inventories were being taken at that time, weren't they?

A. Yes, sir.

Q. You had supervision over them?

A. Yes, sir. September, 482 feet; October, 450 feet; November, 310 feet; December, 357 feet.

Q. Well, now, you still insist then, after looking at those records, that this 14,567 feet constituted a breakage in your stock department?

A. A breakage or loss in stock and a loss in stock would be considered a breakage.

Q. Well, now, how else would you lose this stock except by breakage?

A. That is the only way you will lose it.

Q. Then it is all breakage?

A. Yes, sir.

Q. It couldn't be anything else?

A. No, it couldn't be anything else.

Q. And you have records from somebody under you, which reported to you that there was that breakage in the stock in that month?

A. Yes, sir.

Q. Where are those records?

A. Creighton, probably in the vault.

Q. Now, in November, 1928, your item on there on the Schedule "J" for that month, is 12,744. That, too, was segregated as stock loss, was it not?

A. I don't check your figure. I have 12,670. It is not a big difference.

Q. Use your figure then.

A. 12,670; also a breakage.

Q. And in that same month you have a cutting loss. Your Schedule "J" indicates a cutting loss at 12,268.

A. Correct.

[fol. 125] Q. Now, turn to December, 1928. Schedule "J" of December, 1928, lists an item of 118,222 square feet?

A. Right.

Q. And what is it called?

A. Stock loss.

Q. Is that breakage also?

A. Yes, sir. I would like to explain that a little more fully, before we decide to call it breakage.

Q. It is not breakage?

A. It is scrapped glass, put into cullet. It is broken up afterwards. During the latter part of 1928, there was a decision made to try to reclaim some of the glass that was returned from the outside customers, to salvage the polished plate glass and use that over again. We separated by a method we had up there 118,222 feet of polished plate glass, and that is Duplate feetage 59,111 feet. This glass was all cleaned, put into stock; but it was found after we carried it in stock for a number of months, that it couldn't be used. The sizes were not large enough to furnish the correct windshields we would need in the sizes we were getting orders for then. This glass was all scrapped, broken up and sold as cullet to the Pittsburgh Plate Glass Company. That is what this one item is of 118,222 feet.

Q. So I understand that item is glass which went entirely through your process and was never sold?

A. This was sold.

Q. You mean, it was sent to customers?

A. Yes, it was sent to customers.

Q. And they returned it to you?

A. Yes.

Q. And I assume, therefore, it was not sold. It didn't get paid for?

A. We might have been paid for some of it; we might not. That is impossible to say right now.

Q. Do you mean to say you delivered some glass to a customer which he returned to you; if he paid for it, wouldn't you give him a credit for it?

[fol. 126] A. We would give him a credit for it.

Q. So that glass was not sold?

A. Under the terms you stated, it was not sold; but at the time it was shipped it was billed, probably paid for, and left in their warehouse, maybe six months, eight months, or a year, and then decided it was bad glass and returned to the factory.

Q. In whose warehouse?

A. A customer's warehouse, any one of the customers we sold to.

Q. You don't mean to tell me you took glass back from a customer after he had it a year?

A. I wouldn't hesitate to say that we did.

Q. Have you got a specific instance that you could name?

Mr. Christy: I object. That is just wasting time.

A. I don't have any specific case.

Q. You don't know whether it was returned or kept for a year or not, do you?

A. If you ask me to give a certain particular case, I can't do that, I don't know; but I do know it has been. But to go back and get that evidence enough to support that statement, would be endless work.

Q. How could you know it unless you had a specific instance?

A. I was there.

Q. Then you would know who returned it, wouldn't you?

A. I don't recall. I have been out of that for some time.

Q. Of course, you know this is December, 1928. On your records it doesn't appear you sold anything prior. You hadn't sold anything in December, 1927, according to your accounting?

A. No.

[fol. 127] Q. You were not in business?

A. A year might have been a little long.

Q. Now, that item of 118,222 square feet doesn't include any breakage at all? That is all goods returned, for which I assume the customer received a credit?

A. That is correct.

Q. No inventory adjustment in there, is there?

A. No, sir.

Q. Now, let us get to January, 1929. On Schedule "J," for January, 1929, you have an item of 61,341 square feet, have you not?

A. Yes, sir.

Q. And how is that designated?

A. It is shown on here as shrinkage, but was cutting loss. Shrinkage is another term used there for cutting loss, in that particular month.

Q. On that same month you have an item called "Cutting"——

A. Stock loss, we have an item there, 957 feet.

Q. So that the 61,000 is all cutting loss?

A. Yes, sir.

Q. Nothing else?

A. Just a moment. I have a pencil notation which has been made since that time. The total shrinkage in that month is 61,341 feet; the stock loss is shown as 957 feet,

but the dimensions on that should be stock loss and cutting loss, 43,609 feet, and the breakage in the assembling department that has been returned back to this department was 18,689 feet.

Q. What do they do in the assembling department?

A. That is where the glass is put in what they call the sandwich before pressing.

Q. And that means you take two sheets of glass of equal size and interpose a sheet of pyralin of the same size between the two sheets of glass, making a sandwich of the glass and pyralin?

[fol. 128] A. That is correct. That is known as assembled glass.

Q. So that on all those schedules "J," where the word "shrinkage" is used, it means a cutting loss?

A. In that particular department. In the polished plate stock department, you mean? You are referring to this department alone?

Q. No; I am trying to see if the word "shrinkage," wherever it is used, means cutting loss.

A. No; in some departments it is an operating loss.

Q. Shrinkage might mean an operating loss?

A. Yes.

Q. Taking up February 1929 Schedule "J," you have an item there of 46,145, which I think is designated as plate glass shrinkage?

A. Right.

Q. What is the explanation?

A. It is designated here as shrinkage alone, 46,145 feet.

Q. What is the explanation of that?

A. Cutting loss.

Q. Although on the same schedule there is a——

A. Stock loss.

Q. Another loss of 317 feet?

A. Right.

Q. Which you define as breakage?

A. Right.

Q. Now, in March you have an item of 31,125 square feet, which is also designated as shrinkage. Is that correct?

A. Correct.

Q. And that you explain to be cutting loss again?

A. No; in this particular month here we have stock and cutting loss, 31,780 feet, and we have shrinkage there of 31,125 feet. It would almost be impossible to segregate those through the various months. It is all a shrinkage, a [fol. 129] loss in stock, whether it is a cutting loss or whether it is a breakage, and if those two figures are combined, you will find your percentage will run about the same throughout the entire operation.

Q. The breakage——

A. The breakage and cutting loss. In some cases, the figures are inconsistent. That is what you are getting at. Now, we have 61,341 square feet in some months, and 31,125 square feet in other months. There is just a possibility, the stock being reported into the office as a cutting loss, might have been reported by some of these people making out the reports who were not clerks. They are only tool workers in the factory, and they might have had it wrong on these figures; but the total of these two figures represents cutting and shrinkage loss in that department.

Q. As I gather, then, you can't tell by looking at Schedule "J" whether the particular figure means cutting loss or breakage, but the total of the two would be that shrinkage?

A. As far as we know. The way the records have been reported in to us is the way we have shown the figures on here for losses; but we account for every foot of glass that is lost throughout the operation.

Q. Let us take May, 1929. The first item of loss on that is 5861 feet?

A. That is correct.

Q. What is that designated?

A. Breakage.

Q. Does it say breakage on there?

A. Yes, sir; breakage.

Q. So that that is clearly breakage, not cutting loss?

A. Not cutting loss. You have a figure of cutting loss on there.

Q. The next item is 8516?

[fol. 130] A. Correct.

Q. That is cutting loss?

A. Right.

Q. Now, in that same month down in the pyralin examination department, that shows a loss of 20,878?

A. Correct.

Q. What is the explanation of that loss?

A. That is a cutting loss in the pyralin department similar to the glass department. You have got your oblong sheets and you have got to cut them into counter sheets, and it is the same thing.

Q. So that in that month you lost 20,000 square feet of pyralin?

A. Yes, sir.

Q. All because of cutting. Is that right?

A. Yes, sir.

Q. Now, jump down to September, 1929.

A. Right.

Q. You have an item there in the pyralin examination department of 53,986. Is that correct?

A. Yes, sir.

Q. What is that called?

A. I have that here as loss examining.

Q. What is the explanation of that entry?

A. Unusable pyralin.

Q. You mean, when you came to examine it you couldn't use it?

A. Couldn't use it.

Q. Wasn't up to specifications, you mean?

A. No, it was not up to specifications, as far as I know.

Q. I mean, is that the explanation, that it was not up to specifications?

A. It was not up to specifications.

Q. Wasn't it your custom to return the goods that were not suitable for use in your business?

[fol. 131] A. If it was not cut to a pattern. If it was in the original oblong sheet and not cut to a pattern, it was returnable, but if it had been cut to size to fit any particular pattern, that was not returnable and was absorbed as a loss by the Pittsburgh Safety Glass Company.

Q. You didn't examine it until you cut it to pattern?

A. We didn't cut it to pattern. It came already cut to pattern.

Q. You ordered from your pyralin source of supply certain cut-to-pattern pyralin, according to certain specifications?

A. Correct.

Q. And when you received it and it was not according to your specifications, you couldn't return it?

A. For the reason it was cut to size.

Q. It had been cut to size, and since it was cut to size, even though it didn't come up to your specifications on the order, you couldn't return it?

A. Couldn't return it.

Q. And didn't return it?

A. And didn't return it.

Q. That, of course, never went into production of laminated glass?

A. In some cases, yes.

Q. What cases?

A. If you could cut a smaller size out of it, we wouldn't throw that whole sheet away.

Q. If you could cut a smaller size out of it, but I assume it either isn't in this 53,986, or if it is, it was salvaged and went into your process later on, and the salvage value was given proper force and effect in your costs, and so forth. Is that right?

A. Yes, sir; that is correct.

Q. As, for example, in that same month, in your salvage item there, it appears that you salvaged some 19,508 [fol. 132] square feet of pyralin, that had theretofore been rejected. Isn't that the fact? That month, September, 1928, shows a salvage of laminated glass to the extent of 19,508 square feet of glass?

A. 17,824.

Q. Well, in any event, the statement is correct?

A. Yes, the statement is correct.

Q. Where your glass or pyralin was salvaged from previous losses, it went back into your production?

A. Yes, sir.

Q. And proper effect was given to that salvaging operation?

A. Yes.

Q. And that salvaged glass, of course, was subsequently sold in due course?

A. Sure.

Q. Throughout all these months, except in rare instances, you have items on those schedules "J" there, designated as pressing department losses. Is that correct?

A. Yes, sir.

Q. That amount of glass and pyralin, as specified under the title, "Pressing Department," was taken out of production at the pressing operation. Is that correct?

A. Yes, sir, at the pressing operation.

Q. That glass, except such as might afterwards have been salvaged, was never sold?

A. No, sir.

Q. Now, there are a few items on those schedules "J" that are listed as carbitol department losses. Is that correct?

A. Yes, sir.

Q. And I take it that that is a continuation of the pressing department, where the salvaged glass gets into the autoclave?

[fol. 133] A. That is prior to going into the autoclave.

Q. What is the carbitol? What was that used for, do you know? Does that apply to this?

A. Sure. You know what the carbitol treatment is.

Q. You say it does. You have charged us with it and credited yourselves with it. I don't know wheher it does or not.

A. It is just an adjunct to the pressing department. It is one more operation for the pressing of glass.

Q. When was that first used? I think it appears first on your records there in September, 1929?

A. I would say yes, in September, 1929.

Q. Mr. Datz, on August Schedule "J", 1929, there appears there an item of 44,260 square feet. It is in the pyralin?

A. Right.

Q. What is that designated as?

A. Cutting loss.

Q. Is that what it says there?

A. It is shown here as loss, shrinkage loss, but it is a cutting loss.

Q. Wherever shrinkage is used in connection with pyralin, that means a cutting loss?

A. It will be a cutting loss, yes.

Q. Now, similarly in the schedules "J" for the respective months, you have losses in almost every month in the edging department?

A. Yes, sir, operating loss.

Q. And that means at that point in the process you withdrew from the process glass to the extent listed in the respective months?

A. As shrinkage.

Q. And subject to salvaging thereafter, which would be reflected thereafter, that glass was never sold?

A. Never sold.

Q. And that is true in your Duplate stock?

[fol. 134] A. You mean, finished stock?

Q. Finished stock.

A. Yes, sir.

Q. There, too, you withdrew from the stock amounts of finished stock which were never sold?

A. Correct.

Q. Except as some part of it might thereafter have been salvaged?

A. Yes.

Q. Would there be any salvage in the finished?

A. That is reflected in the figures there from the salvage department, but the proportion of glass salvaged out of the finished stock and out of the other operations, it would be almost impossible to get those figures.

Q. But in any event, if any were salvaged from any point in the process, it would be reflected afterwards?

A. Yes, sir.

Q. Such as was not salvaged represents glass that was not sold?

A. Correct.

Mr. O'Shea: I ask to have Schedules "J" for the entire period marked Plaintiff's Master's Exhibit 8, for further identification.

Q. Now, Mr. Datz, you said you had these monthly reports of cutting losses available at Creighton. Is that right?

A. Creighton, in the vault.

Q. And also the same thing with respect to the reports on breakage?

A. Yes, sir.

Q. When can I get those, so that I may examine them?

A. That all depends on how they have been stored up there. That is probably almost three years ago, and it is all stored in with the Pittsburgh Plate records, and I don't

know how much you will have to move to get at those. It [fol. 135] may be on the bottom of the pile, and all the Pittsburgh Plate records on top; it may require three or four days to move all the stationery out there, and again they may be handy.

Q. Why are they under the Pittsburgh Plate?

A. We use the same vaults to store all records, We don't have separate vaults to store one and then the other.

Q. Are you guessing how they may be on the bottom?

A. Yes, I am guessing.

Q. On the other hand, they may be on the top?

A. Yes; but assuming they are several years old, you know you pile your records on the top.

Q. Is it going to be a superhuman effort to get these?

A. I don't know the condition of their vaults right now.

Q. I would like to have them.

A. If it is possible, we will get them.

Q. Now, I understand, Mr. Datz, that these schedules "J" were posted to your factory ledgers—or is the reverse true, that you got the information for these schedules "J" from the factory ledger?

A. Got the information for the ledger from the Schedules "J."

Q. In other words, the information that is included on Schedule "J" was then posted into the factory ledger?

A. Correct.

Q. And these books you have brought today are the factory ledgers?

A. Yes.

Q. Will you get those books and trace the postings of September of that 92,000 square feet?

(Adjourned until Wednesday, May 13, 1931, at 10 o'clock A. M.)

[fol. 136] Wednesday, May 13, 1931, 10 o'clock A. M.

GEORGE E. SHARPE, a witness produced on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. What is your occupation, Mr. Sharpe?

A. Public accountant.

Q. Are you connected with some firm of public accountants?

A. Messrs. Lybrand, Ross Bros. & Montgomery.

Q. Did you have made up, under your supervision, a check-up of the defendant's statement of account in this case of Triplex against Duplate?

A. I supervised it.

Q. You supervised the check-up and made up a report?

A. Yes, sir.

Q. Is this the report that you made?

A. Yes, sir.

Mr. O'Shea: I ask to have the report produced by the witness marked as Plaintiff's Master's Exhibit 9, and that the summarization report upon the examination of the account filed be marked as Exhibit 9-A.

Q. Mr. Sharpe, the account that you filed is segregated into monthly statements, is it not?

A. Yes, sir.

Q. And there is, in addition to those monthly statements, a summarization of the figures that are contained in the monthly statements?

A. Yes, sir.

Q. And the monthly statements, as made up by you, are segregated into individual sales. Is that correct?

[fol. 137] A. The sales schedule is segregated into individual sales.

Q. The sales schedule sets forth the individual sales?

A. Yes, sir.

Q. And these statements which constitute Master's Exhibit No. 9 were compiled from the books of the Duplate Corporation, under your supervision?

A. Yes, sir.

Q. Do the monthly statements constituting part of Master's Exhibit No. 9 state the profits or losses, as determined by your examination on each of the individual segregated sales?

A. Yes, sir.

Q. And each of those monthly statements also includes what you term as an income account?

A. Yes, sir.

Q. And in that income you have established an average per foot cost of the product that was actually sold. Is that the scheme of the account?

A. Yes, sir.

Q. And further, in making up that income account, you have eliminated certain items which counsel for the plaintiff indicated to you that he intended contesting. Is that correct?

A. That is right.

Q. And those items you have listed in the income account under the heading "Contested Items of Cost and Expense"?

A. That is right.

Q. And among those items are the so-called losses which appeared on the Schedules "J" of the Duplate Corporation, which are marked in this case as Master's Exhibit No. 8 for identification?

A. That is right.

Q. And in addition, thereto, under the heading of "Contested Items," you have eliminated from the costs all ex-
[fol. 138] perimental expense, extraordinary expense, the amounts paid to counsel and others for charges in the Triplex case against Duplate Corporation?

A. Yes, sir.

Q. And under that same heading, you have eliminated the commissions paid to Pittsburgh Plate Glass Company for the sale of the Duplate Corporation's product?

A. Yes, sir.

Q. And in what manner have you treated the returned sales in your account, marked Plaintiff's Exhibit No. 9?

A. For that I refer you to page 14, in our summarization, which I think is called Exhibit 9-A.

Q. The manner in which you have treated those returned sales is fully described on that page 14 of Exhibit 9-A?

A. Yes, sir.

Q. The effect of that, as I understand it, is that the returned sales have been eliminated from the account, Exhibit 9. Is that correct?

A. Yes, sir.

Q. So that no charge is made against the defendant for the selling price, or billing price, of the sales that were returned; no credit is given to the defendant for the costs of those goods, and no profit that may have been charged against the defendant in previous months is considered in your account, Exhibit 9 and Exhibit 9-A?

A. That is right.

Q. Is it a fact that the books of the Duplate Corporation, and particularly their cost accounting, was kept on a monthly basis?

A. It was.

Q. And is it also a fact that the cost accounting system of the defendant, Duplate Corporation, used a unit sales [fol. 139] price? In other words, that they sold their goods on a per foot basis?

A. That is right.

Q. And that the defendant's, Duplate Corporation, cost accounting was kept on an average per foot unit basis?

A. That is right.

Q. And you have followed that scheme of unit sales price and average per foot cost price of the sales in the account which you have prepared, and which is marked 9 and 9-A. Is that correct?

A. That is right.

Q. Referring to Master's Exhibit 9-A, page 2 thereof, as I understand it, constitutes a reconciliation between the defendant's statement of account filed with the Master and the report which you have compiled and filed here as 9 and 9-A?

A. Yes, sir.

Q. Now, will you please explain briefly the tabulation appearing on page 15 of Master's Exhibit 9-A?

A. That is sufficiently explained in the headings on those columns. I can't explain it any further than that.

Q. Well, the net result of that tabulation is a showing of the net profits on the basis which you adopted in filing your report listed in months. Is that correct?

A. That is right.

Q. Mr. Sharpe, I show you two schedules, and ask you if you prepared those two schedules?

A. Yes, sir.

Q. Will you just explain briefly what those first two pages are?

A. I had better take the second page first. The second page represents the number of feet of losses, as fully described in the headings on the columns, which totals are the same as appear on the Duplate Corporation's sched- [fol. 140] ules "J." The memorandum at the bottom of page 2 represents the exact wording as it appeared on these Schedules "J," whereas the classification in the

columns is according to our classification, which is contained on our details of contested items eliminated from the account. Page 1 represents the cost of glass lost in process, as calculated by using the area in feet, as shown on page 2, times the average cost of production, up to the respective stages each month, as shown on the Duplate Corporation Schedules "J." I might further add, the paragraph contained on page 17 of my report—this paragraph is headed "Detail of Contested Items Eliminated from Cost of Duplate Sales"—has a short explanation of those items, in addition to what I have said.

Mr. O'Shea: I now offer in evidence these two schedules referred to by the witness, and ask that they be marked as Plaintiff's Master's Exhibit No. 10.

Cross-examination.

By Mr. Christy:

Q. You have referred to the elimination in your account of certain items of cost shown on the defendant company's books, and I understood you to say that you did that under direction of plaintiff's counsel. Is that correct?

A. Yes, sir.

Q. Now, in order that we may take one item for illustration and follow it through, I refer you to page 13 of your general statement, 9-A, in the line of January, 1929, and your detailed statement for that month. As I understand your detailed statement for January, 1929—see page 7—you have eliminated from the defendant's costs, as shown for that month, the sum of $173,792.44. Is that right?

A. That is right.

[fol. 141] Q. Now, referring to the January, 1929, line, on page 13 of your summary, will you please point out how the sum eliminated figures in your profit showing?

A. You refer to the sum of $194,000?

Q. Yes—$194,721.86.

A. I think you want to know why that doesn't agree with $173,792.44?

Q. Referring now to page 13, of your condensed statement, you show a total of contested cost eliminated of $194,721.86. What is the reason for the difference between that figure and that shown on page 7 of your detailed statement of January, 1929?

A. The difference, $20,929.42, is shown on page 5 of January, 1929, statement, under the column headed "Contested Items of Cost and Expense," and represents certain expenses eliminated.

Q. Now, which column, on page 13 of your summary, gives the final alleged profit, as computed by you? That is, is it column 3 or column 4?

A. It is pretty hard to answer that yes or no, because the profits as shown in column 3 are the profits as shown on the income accounts, and the profits shown in column 4 are the profits as computed in individual sales, as shown on the schedule of sales.

Q. Well, which, in your opinion, is correct?

A. The column 3.

Q. Then taking column 3 for January, 1929, showing an alleged profit of $160,981.76, please trace briefly through your accounts how that figure is obtained?

A. That figure is obtained by starting with the loss of $33,740.10, as shown in column 1, and reducing that loss by reason of eliminating $173,792.44 of contested items from cost of sales, as detailed on page 7 of our January monthly statement, and items of expense, as detailed on page 5, of January '29 statement.

Q. Does the figure of $33,740.10, appearing in the first column on page 13 of your summary, for January, 1929, [fol. 142] appear directly on the defendant's books, or is that a result of a computation of your own?

A. That figure is arrived at by a compilation of figures on the defendant's books.

Q. And is that also true of the figure of $194,721.86, in the second column for January, 1929, on the same page?

A. That amount isn't on the defendant's books.

Q. And how did you arrive at it?

A. The explanation of how we arrived at it is explained on page 17 of our summarization, Exhibit 9-A.

Redirect examination.

By Mr. O'Shea:

Q. Mr. Sharpe, on this question of page 13, the first column on that page, and taking the same month that you have been discussing, $33,740.10 is the loss, as I understand it, shown on the defendant's books for that month. Is that correct?

A. It is the loss on gross sales.

Q. On gross sales as shown on defendant's books?

A. It is.

Q. Now, starting from that point, what you did was to eliminate from defendant's costs certain items, and those items are all the losses as shown on Schedule "J" for that month of January, 1929, and all the contested items of expense, such as experimental expense, expense of Triplex patent case, miscellaneous patent expense, Mellon Institute fellowship, commissions paid to Pittsburgh Plate Glass Company, all of which contested items are shown on page 5 of Master's Exhibit 9, for the month of January, 1929?

A. That is right.

Q. All of which amount to $194,721.86, which is shown in the second column on page 13 of 9-A. Is that correct?

[fol. 143] A. That is correct.

Q. Now, the third column on page 13 represents the difference between the first column and the second column. Is that correct?

A. That is right.

Q. So that at that point, instead of having a loss for that month of $33,740.10, you were, in effect, showing a profit at that point of $160,981.76?

A. That is correct.

Q. Then the fourth column represents, it so happens in this case, the net profit? And when I say "net profit", I mean total profits with the deduction of losses, as shown on the schedule of gross sales, the total of which appears on page 3 of Master's Exhibit 9, for January, 1929. Is that correct?

A. That is correct.

Q. So that the $161,680.42 represents the difference between the figures shown on page 3 of Master's Exhibit 9, for January, 1929, which are under the heading "Profits", of $165,828.60, minus the figure appearing under the heading "Losses", of $4,148.18?

A. That is right.

Q. Mr. Sharpe, on page 13, I think you stated that the total of the fourth column on that page, which is $1,751,217.38, represents the claim which the plaintiff here makes of profits against the Duplate Corporation. You have not set down here any specific figure which you have

in mind as the amount of the plaintiff's claim against the defendant company, have you?

A. No, sir.

Mr. O'Shea: In order to clear this subject up, and for the information of Mr. Christy, I wish to state on the record that the plaintiff's claim will be based on the figure on page 15, under the column "D", which amounts to $1,614,665.33.

[fol. 144] Q. And it is true, of course, Mr. Sharpe, that this tabulation or schedule on page 15 was made by you under instructions of counsel for the plaintiff?

A. That is right.

FRANK W. JUDSON, a witness produced on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. What is your business, Mr. Judson?

A. Glass; sales director of the company—Pittsburgh Plate Glass Company.

Q. Do you hold any position with the Duplate Corporation?

A. We distribute the Duplate Corporation's products.

Q. But do you hold any title or position?

A. I do not; no title with the Duplate Corporation except manager of the Pittsburgh company which distribute Duplate Corporation's products.

Q. I assume, therefore, that the Duplate Corporation pays you no salary?

A. They do not.

Q. Do you know who established the selling prices of Duplate Corporation?

A. Who establishes them?

Q. Who did establish them?

A. Why, I would say that was sort of a conference; three of our officials would get together and we would discuss the question of costs, selling price. It has never been established by any one individual since I have been there.

Q. You say "three of our officials."

A. I should say two or three.

[fol. 145] Q. By that you mean three of whose officials?

A. The approval in our organization on selling prices of glass is usually up to the chairman of our commercial department, Mr. Higgins. That is the way we are organized. Mr. Higgins is practically chairman of the commercial department.

Q. Chairman of the commercial department of the Pittsburgh Plate Glass Company?

A. If we should establish a price, or change a price, if Mr. Higgins were in this country or available, I would consult him before changing the price, as sales director.

Q. Mr. Higgins is an official of the Pittsburgh Plate Glass Company?

A. Vice-president and chairman of the commercial department.

Q. And as I understand you, if the question of establishing the selling price for Duplate Corporation came up, you and Mr. Higgins confer on the matter and come to an arrangement as to what price the Duplate Corporation would sell its goods?

A. Yes, sir. Quite appropriately, I might add, I succeeded Mr. Higgins. He was director of sales and in charge before I came here, so it naturally would follow that way.

Q. Do you know whether Duplate Corporation had any set policies of price to customers?

A. It would establish prices the same as we do. We would sell classes of trade, depending on quantities and sizes.

Q. You did, then, have an established selling price to customers, depending on quantities and sizes?

A. I couldn't say at the time. I remember now this year a new line of glass—to go back three years ago, because I have been in Pittsburgh just three years ago yesterday, I came here about the time when we started to put this on the market. When it was first placed on the market, it was not [fol. 146] possible to classify your buyer or know what you could get for it, or know what the fellow would be willing to pay for it at the start. You were sort of up in the air in establishing prices or finding out what you could sell it at. The prices at the beginning though, of course, were considerably higher than they are at present.

Q. Now, as I understand it, in the beginning of this business, say from January, 1928, until June, 1928, there was

no established price at which goods were sold to the consumer?

A. I would say there was not. It would depend on the detail. There was no certain price for half a dozen people that would be the same, or anything of that kind, or established price.

Q. It varied?

A. It varied somewhat.

Q. And the variations in that period were not dependent on quantities?

A. Yes, they were, to some extent.

Q. What do you mean by "to some extent"?

A. We would take a manufacturer, automobile manufacturer, who could be induced to use this product, to specify it, to help the laminated glass industry. He would buy in large quantities. If you make up large quantities in one size it costs you less than if you would come to our shop tomorrow and want to buy a light of glass for your car. We would stick you right. You would only want to buy that one light. You are not getting it for the trade. You are just getting it personally. In between there is the automobile replacement shop, and automobile dealer, and in a new line you can't very well establish a certain line of prices like you can on window glass. They didn't know anything about the cost in those days.

Q. I find in the early part, in the months of January and February, 1928, your invoices indicate, just as a matter of [fol. 147] refreshing your recollection; for example, I find one invoice here for 259 square feet, which were sold at three dollars, and the next item is three square feet plus four inches, which was also sold at three dollars.

A. The same dealer.

Q. The first one of 259 square feet having been a sale to Murray Corporation of America, and the second one of three square feet, approximately, having been to the Stimson Aircraft Corporation.

A. They are both large users of laminated glass. One is a body builder and the other is an airplane builder. They used laminated glass from the start in making ships.

Q. Those two prices seem to indicate the same price?

A. To the same type of buyer.

Q. To the same type of buyer? In other words, of quantities.

A. In those days, the aircraft company would use as much as the body company, because the aircraft group figured that more important than the body company.

Q. Those two invoices seem to indicate that the purchasers of that class received the same price, irrespective of the quantity involved?

A. Yes, sir.

Q. Now, the Pittsburgh Plate Glass Company's warehouse received that same price, too, did they not?

A. I am not clear on that, but I would say we give our warehouses no benefit over anybody.

Q. There appears to have been an invoice in the same month of either January or February of a sale to one of the Pittsburgh Plate Glass Company's warehouses for seventy-eight feet, which was sold at three dollars, again indicating, I take it, that the same price——

[fol. 148] A. Large buyer. Our own warehouses would naturally recognize the large buyers.

Q. Would a sundry customer be considered as a large buyer?

A. I should say a sundry customer, in our term would not be a large buyer.

Q. I find an invoice here listed as a sale to a sundry customer, for twelve square feet, at the price of three dollars.

A. I think an investigation would prove that term. It might be it would be a body builder or automobile company, because when we were selling the automobile trade at five dollars, our price was almost prohibitive to a retail buyer. To an individual, it would be around five dollars, as Mr. Caulfield knows, at that time.

Q. I find another invoice to a Pittsburgh Plate Glass Company warehouse for twelve square feet and ten inches, at the rate of $1.82.

A. That is lower than they were getting even a month ago, I think. That, you will find, was probably salvage. That was not new glass. No warehouse got $1.82 in 1928, unless it was salvage.

Q. But your invoice shows it.

A. That might have been salvage, I say. We might have cut that out of something that was a reject, or something of that sort.

Q. As a matter of fact, was there an established price based on quantity, or particular customer, in this early period?

A. In that early period we endeavored to get—that invoice—three dollars from what we would call a large buyer. In a replacement shop we probably tried to get three and a half to four dollars. The exact prices I don't remember.

Q. If you were unable to get that price, you took some other price?

[fol. 149] A. I would say not in that early period. Later on, when we found our competitors making all sorts of prices, we had to meet the situation when it came up.

Q. What competitors did you have?

A. The Triplex Company and I don't know how early the Indestructo were in it. I haven't the figures to know how early they were in the game.

Q. Was the Indestructo a very serious competitor in this business at that period?

A. The same as they are at the present time.

Q. Are they a serious competitor at the present time?

A. To this extent: their prices influence a great deal of business; in other words, if they figure our price is higher and they are lower, even though it amounts to only a few pennies, the customer will probably consider it, and they will get the order, even though we don't consider it as good as ours.

Q. Do you know how large a factory they have?

A. A very large factory; but their production is not so large.

Q. Do you know how large a factory they had in March, 1928?

A. I do not.

Q. So far as you know, the only competitors in this business in the early part of 1928, was Indestructo and Triplex. Is that correct?

A. I don't recollect when Libby-Owens got in. The Saftee Glass Company were in it before Triplex. The two main competitors in those days were Triplex and Saftee.

Q. Was Saftee a very serious competitor in those days?

A. Yes, sir; I think we found them in every case practically where we had competition.

[fol. 150] Q. In selling to body builders and automobile manufacturers?

A. Oh, yes; they were much stronger than they are today.

Q. I am asking of these early days?

A. They were much stronger than they are today.

Q. Were they selling to automobile manufacturers and quoting to them?

A. Yes, sir. Selling to the Government and shipbuilders and airplane builders.

Q. I am talking about automobile manufacturers, and body builders?

A. Yes, sir. They still do today, to some extent.

Q. Now, it is a fact, is it not, that the Pittsburgh Plate Glass Company sold the product of the Duplate Corporation to the users at the same price at which Duplate Corporation billed the goods to Pittsburgh Plate, subject to the commission only?

A. Yes; with this qualification: I might answer that quite a number of the large accounts we handled directly, and not through a warehouse, as our records will show. Some accounts we sell directly, and not through a warehouse.

Q. Well, I asked——

A. You said subject to commissions. If we shipped direct, the warehouse wouldn't get a commission.

Q. You mean, if the Pittsburgh Plate sold some glass through one of its warehouses, they wouldn't send Duplate a commission on that sale?

A. Oh, yes. I get your point. I agree with you. I misunderstood you. I thought you got the impression we sold glass only through the warehouses.

Q. No. I have it all before me.

A. Yes, I get your question now.

Q. The fact is, the Pittsburgh Plate Glass Company sold the product of the Duplate Corporation to the consumer or [fol. 151] user of the glass at the same price that Duplate charged Pittsburgh Plate, subject to the selling commission, which was an arrangement between Duplate Corporation and Pittsburgh Plate?

A. As far as I know. My knowledge of the accounting end of Duplate Corporation, as our officials know over there, is very limited.

Q. But you know all about the prices?

A. I know about the selling prices.

Q. In this question of commission, do you know whether the arrangement for commissions between Duplate Corporation and Pittsburgh Plate was a subject of a written contract or not?

A. I do not; no, sir.

Q. You never saw such a written contract?

A. Never saw such, or never heard it discussed.

Q. Were all of the customers treated the same with respect to prices? That is to say, did they all obtain the same price?

A. No, sir.

Q. What customers? Did some customers receive a preferential?

A. A large buyer.

Q. Only those who were larger buyers?

A. A large company. An automobile company would get a lower price than a replacement shop, to replace the glass after it was broken.

Q. Would you consider a customer who had purchased 40,000 square feet in a particular month a large buyer, as distinguished from a customer who purchased 20,000 square feet in that month?

A. No.

Q. They would be in the same class?

A. I would think they would be about the same, depending on the class of buyer and their future prospects. May I add, you haven't discussed qualities at all. There might [fol. 152] be a difference in prices on the grades.

Q. Do you know whether there was a difference in grade between the product sold to Motor Products Company and the product sold to Studebaker Corporation? The Motor Products Company would be for the Hudson Company.

A. Yes, there would be. Studebaker used it completely in the whole car.

Q. But that wouldn't be a question of quality, would it?

A. That wouldn't designate the quality, but there was a difference in price between a company who used it all around and a company who used it only in windshields. The Motor Products Company made windshields only; the Hudson used it only in windshields; they never used it in bodies since they have been in business.

Q. Did the Studebaker use it all around in July, 1929?

A. When they started to use laminated glass, they used it completely in all top models.

Q. That is the higher-priced models?

A. Yes, sir; the higher-priced models. That is what they call the President, I think.

Q. So that you had a different price for large automobile manufacturers, based on whether they used it only in windshields——

A. That is the only instance, I think, where they used it in windshields only. I wouldn't say that as a positive statement, but I think it is the only company where they use it only in windshields.

Q. And Studebaker, starting in July, 1929, used it all around?

A. Yes, sir.

Q. How about the Auburn Company?

[fol. 153] A. The Auburn Company have never adopted it to this date, but are recognized as a large automobile account.

Q. And yet I find in the month of July, 1929, a sale to the Auburn Company at the rate of $1.60, and in the same month, July '29, a sale to the Motor Products Corporation, for a Hudson car, at the rate of two dollars. Wouldn't that seem to indicate a difference?

A. No, it would not. The difference is, the Auburn bought it for taxicabs and cut from rejects, and would get a lower price, which was quoted not only by us but competitors.

Q. Quote a lower price?

A. Yes, on anything they could get from rejects.

Q. This is a higher price?

A. No.

Q. They got about $1.60.

A. And Studebaker got $2.00 in those days.

Q. I find a sale of 109 square feet at $1.60.

A. That was not the original contract. There may have been a sale in between.

Q. It was the ultimate sales price?

A. I mean the original price to Studebaker—I made the price myself—was $2.00; but afterwards there were changes made, due to competition.

Q. $2.00 with a 40 per cent. rebate. Is that right?

A. I don't recollect that particularly. I wouldn't be surprised. Auburn's purchases in those days were entirely for taxicabs, so they wouldn't enter into comparison with the others at all at any price.

Q. So there was a distinction in the character of the car, whether it was taxicab or something else?

A. Auburn in those days wasn't and isn't today, a large buyer of laminated glass.

Q. And it is your opinion that there were no favored prices given to any customers; that all prices depended on quantity and quality?

[fol. 154] A. You say "favored"?

Q. I mean by that, customers in the same class and for the same type of car, received the same price?

A. Not in all instances, no.

Q. There might be some instances?

A. Yes, there might be some instances, but not from a competitive standpoint.

Q. Do you know whether you had any retroactive prices to customers?

A. I think in one or two instances we had.

Q. So that there was a plan, wasn't there, or policy in the company, of allowing a large automobile manufacturer a rebate?

A. Not generally.

Q. In some instances, though?

A. If you will allow me to explain that, if you want me to, I will give you facts. I have in mind two companies who had figured with none of the laminated companies in America, hadn't even discussed glass, except allowing the salesmen to discuss it with them. It so happened both were personal friends of mine, so I am justified in making that statement. These two companies I saw about the same time. They were using regular glass. I approached them with the thought of increasing the demand for laminated glass, and made them a proposition to use laminated glass. They were not interested. I approached them I think a second and third time. In the meantime, no competitor had mixed in in that time. To induce them to use it, we had to give a definite amount of rebate that they could afford to assemble it in these models, to sell to the dealer, and those two we refunded, made a rebate in those two accounts, resulting in both of them adopting it for their top models. One has continued and the other fellow found it too expensive and he quit, even at that; but in those two cases we reduced and went below our costs, probably. [fol. 155] I don't know the costs; I never went into that end of it, but I know we made a specially low price, in the hope that would increase the demand for laminated glass. We had no competition on our prices, were in right, and I nego-

tiated with them and tried to get them, and expected by it we could get them to use laminated glass. The prices we made affected nobody else. It was our own business with them, and I think it kept on for two years.

Q. What two companies were those?

A. The Nash Company and the Studebaker Company.

Q. Didn't you grant rebates to the Hudson Company?

A. We did not, sir. I will say this, as far as I know, it was a set price to the Hudson Company on windshields.

Q. I find an invoice here in July, 1929, which indicates that the product was sold through Motor Products Corporation, Motor Products Corporation being billed at $2.50.

A. Yes, sir.

Q. And that a rebate—I am using the word rebate simply as a definition——

A. That is not offensive in this case at all.

Q. I don't mean to be. A rebate of fifty cents was granted on that invoice?

A. That was to the Hudson Company. The deal was made to the Hudson Company. They were the ones who bought it. The Hudson Company's price was the price you would make that company. The Motor Products Company were simply handling it for the Hudson Company. They were aware of the price we made. They simply bought this glass and put it in the Hudson equipment. Are you sure that is fifty cents? I thought it was forty cents. [fol. 156] Q. It says fifty here, and these are supposed to be copies of the invoices of the books of the Duplate Corporation.

A. That is all right. It occurred to me it was forty cents. If you will permit me, I will add the same thing there. The Hudson Company were induced to use laminated glass by our company, and we had no competition. We handled that the same. That was some time after the other two deals were made, but we influenced the Hudson Company, who had bought of us over twenty years. I don't think they even at that time discussed laminated glass, and we induced them to use laminated glass for the same reason, to increase the consumption of laminated glass.

Q. You don't mean they used laminated glass for twenty years?

A. No. We had been selling them all of their glass, but in giving them any kind of a price, it was done to influence them to purchase laminated glass and use it.

Q. Can you tell us why this rebate was allowed the Hudson Company on sales that were made through Motor Products Corporation?

A. Because the Motor Products Corporation are not automobile builders. The Motor Products and the Ainsworth Company are the large companies making automobile windshields, and they buy wherever they are told to buy by their trade. There was no reason for giving Motor Products and Ainsworth at that time a price on that; because they don't determine where they are going to get the glass. The glass they buy is designated by the people they build for. So, so far as they are concerned, there was no reason to give them any price, any more than anybody else.

Q. Is the explanation this; the Motor Products Company, not being a car manufacturer, you wanted to main-
[fol. 157] tain a particular price to customers of that class, and yet give the benefit of a lower price to the car manufacturers?

A. I would say that would be it. The Motor Products were not interested. They don't care what the price is. They figure the frame and put the glass in for so much. They just buy their glass wherever the other fellow tells them, and they do it today.

Q. I think that was the reason given by Mr. McHenry?

A. Yes, sir. That is the way they prefer to have it done so far as that is concerned.

Q. Now, in September, 1929, I find an invoice here of a sale to the Chrysler Corporation direct, without the intermediary of a windshield builder or dealer, and that invoice indicates a ten cent rebate to Chrysler Corporation. Can you give us some explanation?

A. I don't even recollect the price we made Chrysler at that time. I don't know whether it has any bearing on the case or not. I am prefacing that statement with these remarks. Chrysler is a case where they haven't bought a foot of glass from anybody else in the country, and the price we made them was just to induce them to use laminated glass.

Q. They never bought any glass from any person prior to September?

A. I don't think so; and I question if they have since

Q. It was your thought, Mr. Judson, Chrysler Company never purchased any laminated glass prior to September, 1929?

A. That is my thought, for regular consumption. They may have purchased some to test and see what it looked like. That often happens. I think every large company is interested in any new product they might use, and purchase it for their testing department.

Q. How big would a test order be?

[fol. 158] A. I couldn't say; maybe twenty or twenty-five sets. We shipped twenty-five sets the other day to a company to test it.

Q. If you got over twenty-five sets you think it would be a consumption order?

A. Yes, I would say it would be a consumption order.

Q. Do you know anything about the prices charged Duplate Corporation for its raw glass?

A. I do not.

Q. You don't sell the raw glass for Pittsburgh Plate Glass Company?

A. It is a detail that is handled through the office.

Q. You know nothing about it?

A. I could guess at it, but I don't know.

Q. Who was it that established this policy of granting the rebates to car manufacturers?

A. You mean, I think, in that case—I would object to the word "rebate"; I would say special prices.

Q. All right; special prices.

A. That would be a discussion in the office between the vice-president and myself.

Q. Vice-president of Pittsburgh Plate Glass Company and yourself?

A. Yes, and myself.

Cross-examination.

By Mr. Christy:

Q. Mr. Higgins has always been an officer and director of the Duplate Corporation, also, has he not?

A. Yes, I think he has, from the beginning.

(Adjourned until Monday, May, 18, 1931, at 10 o'clock A. M.)

[fol. 159] Monday, May 8, 1931, at 10 o'clock A. M.

NEILSON EDWARDS, a witness produced on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. Mr. Edwards, are you connected with the Triplex Safety Glass Company of North America?

A. Yes, sir, I organized the company and got Mr. Haskell interested in it, and I have been vice-president of the company ever since it started.

Q. You testified in the suit on this Benedicts patent which is being sued on here in the District Court?

A. Yes, sir.

Q. Prior to the formation of the Triplex Safety Glass Company of North America, did you make any efforts to interest any other people in the Benedictus patents?

A. In 1925, I tried to sell the Benedictus patents to the Pittsburgh Plate Glass Company; talked to Mr. Wherrett and Mr. Higgins and Capt. Brown, who is now dead, and they told me that they wouldn't be interested in the patents, because they didn't think that the laminated business was ever going to amount to a big enough industry to interest a company the size of the Pittsburgh Plate Glass Company. We talked to the du Pont Company along the same lines, and got the same reaction. I also talked to the Standard Plate Glass Company.

Q. When was the Triplex Plate Glass Company of North America formed?

A. Mr. Haskell and I started the business in the early part of 1926. We went to Europe in January of 1926 and bought the American rights, and ordered the machinery, and started to build the plant immediately. The corpora-[fol. 160] tion actually came into corporate existence in June of '26, which time Mr. Haskell and I were the sole stockholders and the owners of the business.

By the Master:

Q. Is the Triplex Company a New Jersey corporation?

A. Delaware, I believe.

By Mr. O'Shea:

Q. What do you know about the source for glass suitable for use in the laminated glass industry, in and prior to June, 1926?

A. Immediately after the war, I became interested in the plate glass business, and finally organized the National Plate Glass Company, which was a consolidation of the Columbia Plate Glass Company, the Saginaw Plate Glass Company and the Federal Plate Glass Company, and I sold that to the General Motors Company in the end of 1919, and was offered the presidency of that company by Mr. Durant, who was then president of the General Motors, which I didn't accept. Following that, I was interested in the Heidecamp Plate Glass Company for several years, and was a director of it, and later in the Standard Plate Glass Company, and I knew that when we started Triplex there was no one-eighth inch plate being manufactured in commercial quantities in this country. When we started Triplex, we did exactly as the English company was then doing, and bought our glass in Czechoslovakia and other European countries, and that was one reason we located our original plant at Hoboken, and our present plant at Clifton. Before we actually got into production, I talked to the officers of the Pittsburgh Plate Glass Company about their making one-eighth inch plate for us, and was told by Capt. Brown and by Mr. Wherrett that when and if we were [fol. 161] able to order substantial quantities of one-eighth inch plate, they would make it for us, and we tried through '26 and through '27 to get them to furnish us with a thin plate. Of course, there were several sources of supply in this country for sheet glass, but we used very little of that to start with, and it was the middle of 1927 or the middle of 1928 before we got any thin plate. I know the way it worked was, they started to make thin plate in January or February of that year, and they didn't sell us any of the thin plate until six months later, although we did everything we could to get them to sell it to us. I can tell you definitely whether it was 1927 or 1928, if I can refresh my memory on some notes I have in my pocket.

Q. You may do so if you have any notes in your records.

A. The first thin plate we got from Pittsburgh was in the middle of 1928; I think it was July. They started to

manufacture six months prior to that, but we hadn't gotten any before then.

Q. You spoke of one-eighth inch plate glass and thin plate glass. Are we to understand from those references that that is the character of glass that is suitable for the manufacture of laminated glass?

A. Yes, sir, that is true, with the possible exception of bullet-proof glass, which is a minor article with us.

Q. In our discussion here, we will consider that we are discussing glass suitable for use in automobiles.

A. That is one-eighth inch or thin plate. It is the same thing, to my mind.

Q. Do I understand you to say that throughout the year 1926, after June of that year and throughout the entire year of 1927, you had a number of conferences with the executives of the Pittsburgh Plate Glass Company?

[fol. 162] A. Yes, sir.

Q. At any of those conferences, was there any discussion about patents owned by the Triplex Safety Glass Company of North America?

A. Yes, there were. We discussed it several times, and my contention always was that the Triplex patents, Benedictus and others, covered the industry, and Pittsburgh's executives took the position that they didn't agree with us, that there had been other people making laminated glass in this country, specifically the Saftee Glass Company in Philadelphia, and the Indestructo Glass Company, who had a small plant down on Long Island. And they claimed that Saftee specifically was using the processes covered by Benedictus, and we are now in process of suing them on those patents, and Indestructo used a process that was different in some respects, but neither of those companies ever did any business on a commercial basis in the automobile field. During the war, Saftee made goggle glass and some special lights of that kind; but up to the time that we started to produce glass commercially for the automobile industry, the sales manager, McCusker, of the Saftee Company, told me the only cars they put glass in were their own friend's, and people connected with the company; and he estimated they had not equipped over fifty automobiles altogether; and they never had any what we call standard equipment business. Indestructo was less of a factor, from an automobile standpoint of view, because even the officers of In-

destructo didn't have safety glass in their cars at that time.

Q. What do you know about the factory of Indestructo Company?

A. The original plant that I visited first in 1918 was in back of an old garage on Long Island City, and was two or three times as big as this room, and I suppose they had half a dozen employees, and were not making any automo- [fol. 163] bile glass. A few years ago, they moved the plant down to Farmingdale, Long Island, where they have a bigger plant; but in 1926 and 1927, they were not a factor, as far as any glass was concerned, except goggle glass, and made special jobs and a little bullet-proof glass that they made for banks. Saftee was located in a wooden shed in Philadelphia. It was quite a big plant, but 80 per cent. of the plant was used for making a different product—wrappers for loaves of bread. The Saftee Company is not a corporation; it is owned entirely, and always has been, by Louis J. Kolb, who was in the baking business, and he had this plant up there, and used most of it to make wrappers for loaves of bread, and over to one side he had this process for making laminated glass, which I saw at various times; but as I say, they were not in the business for making laminated glass for automobiles. The first automobile company in this country that ever used safety glass, as standard or optional equipment, was the Chrysler Company, who put it in in 1927 as optional equipment for their cars.

By Mr. Christy:

Q. You mean Saftee glass, not safety?

A. Saftee.

Q. I mean, that was the concern that was using it at that time?

A. No; Chrysler was using Triplex.

Q. Draw a distinction between Saftee Company and safety glass, is what I mean.

By Mr. O'Shea:

Q. Mr. Edwards, in your statement you spoke first of the Saftee Glass Company, and then in reference to Chrysler, you used the term "safety glass". What do you mean by

the use of the term "safety glass", in reference to its use by Chrysler Company?

[fol. 164] A. I mean that the first automobile company in this country that used laminated glass was the Chrysler Company, and they bought it from Triplex in 1927.

Q. You had a conversation with the president of Indestructo Company just prior to your trip to Europe, after you had interested Mr. Haskell in laminated glass, did you not?

A. Yes, sir. Mr. Bartlestone was the head of that company, and he tried to sell me his business.

Q. Did he put any price on it?

A. Yes; he wanted $40,000 for it.

Q. And that was in the year 1926, do you recall?

A. It was in the fall of 1925, because Mr. Haskell and I went to Europe in January of 1926, and investigation of his company proved that at that time he had no patents on laminated glass. He had a patent on a press, but he had no patents on the product, and my investigation of his product led me to believe it was not a commercial article. It looked pretty good when he first made it, but it didn't have what we call permanency of adhesion. If you put it in an automobile and run around the streets for a few weeks, it would shake apart. He did some business with the Government, and had some glass in battleships, and in those ships, after they had been down in the hot countries and came back, the glass was all coming apart. So we told him we were not interested in buying the business.

Q. Do you know whether the Triplex Company has a suit pending against the Saftee Glass Company of Philadelphia?

A. Yes, sir, I do. We have a preliminary hearing on Wednesday of this week.

Q. Do you recall a conversation with Mr. Wherrett and Mr. Higgins, on or about October 5, 1928?

A. Mr. Haskell and I visited them at the offices of the Pittsburgh Plate Glass Company here in Pittsburgh, and [fol. 165] discussed the general situation in regard to selling laminated glass. They took the position—they told us that they were going to sell laminated glass to one automobile manufacturer in each price class, irrespective of what they got for the product, on the theory that if they got one manufacturer in each price class to adopt laminated glass,

the other people would have to follow, and they didn't know what it cost them to make laminated glass and didn't know how to set a price. So they were going to take the business at whatever price they could get, and then hope to make money out of the other people that came to them later. They told us then that they were selling at prices which were very much below the prices we had been quoting. We complained of their having taken business away from us on price. They told us they knew that was so. We also told them that to the best of our knowledge, they were using our process, and that that wasn't fair competition. They denied that they were doing that.

Q. From time to time during 1926 and 1927, did you visit the executives of the Stutz Automobile Company—if that is the correct name of the company?

A. Stutz Motor Company.

Q. With the view in mind of endeavoring to get them to use laminated glass on t[illegible]z car?—Perhaps my date was wrong.

A. In the latter part of 1928, a group of individuals, of which I was one, bought a large percentage of the outstanding stock of the Stutz Company. In company with the rest of the people who were interested in that purchase of practical control interest in the Stutz, I visited the factory in Indianapolis in the fall of 1928, and arranged with Col. Gorrell and Mr. Moskovitz, who were the vice-president and president of the company, to use Triplex glass as the standard equipment in all Stutz cars.

[fol. 166] Q. Did you carry on those negotions for some time?

A. Yes, sir. We agreed at that visit to the principle that was involved, discussed prices, and contract was drawn between the Stutz Company and the Triplex Company, and finally executed, covering their requirements for the year 1929. I don't remember whether it was a contract for the calendar year or a contract for twelve months from the date of the contract. I will bring in the contract, if that is important.

Q. I show you a letter, dated December 8, 1928, and ask you if you received that letter?

A. Yes, sir, I received this letter.

Q. There are a number of pencil notations on there. Do you recognize the writing?

A. Yes, sir, I wrote them. The first one is "Letter December 8, receiving"—this is a notation I made for a telegram we sent to Gorrell—"Letter December 8, receiving careful attention. Will advise you fully, but can assure you no rebates being paid anyone. Accept with pleasure invitation for 19th."

Q. Mr. Edwards, who was Col. Gorrell?

A. He was director and vice-president of the Stutz Motor Car Company of America, Incorporated. He is now president of the company.

Mr. O'Shea: I offer that letter in evidence and ask to have it marked as Plaintiff's Master's Exhibit No. 11.

Q. Mr. Edwards, attached to Plaintiff's Master's Exhibit No. 11 there appears to be a copy of a letter purporting to be signed by T. A. Calhoun. Was that copy transmitted to you with the Master's Exhibit No. 11, do you recall?

A. Yes, sir, I believe it was.

[fol. 167] Mr. O'Shea: It is understood, then, that the attached copy of the letter is part of Master's Exhibit No. 11.

Q. I now show you what purports to be copy of a letter, and ask you if you recollect whether that is your reply to Col. Gorrell, in response to the Master's Exhibit No. 11?

A. Yes, sir; it is dated December 11, 1928.

Q. And you sent the original of that letter to Col Gorrell?

A. Yes, sir; it was answered December 10; but the first sheet of the copy is dated December 11 and the second sheet December 10, which I presume is due to the fact the second sheet was retyped the next day.

Mr. O'Shea: The copy of reply addressed to Col. Gorrell, of the Stutz Automobile Company, is offered as Plaintiff's Master's Exhibit No. 12.

Q. Plaintiff's Master's Exhibits 11 and 12 were received and sent by you in the course of your negotiations, in an endeavor to obtain the laminated glass business of the Stutz Motor Car Company. Is that the fact?

A. Yes, sir. May I interject one thought there? The management of the Stutz Company had agreed with us that we were to have the business. These letters had to do primarily with the details as to price and terms.

Q. What was the final result of your negotiations?

A. We entered into a contract with the Stutz Company.

Q. Was that contract carried out?

A. For a time they lived up to their part of the contract. Later, during the life of the contract, they bought laminated glass from Duplate and Gorrell told me the reason they did it was because Duplate glass was much lower than ours, and [fol. 168] based on our statement that Duplate Company was using our process, and therefore he couldn't be justified in paying a higher price for ours than he could buy Duplate. I saw the product from Duplate.

Q. Now, Mr. Edwards, were you occupied with endeavoring to establish a demand for laminated glass among the automobile manufacturers and body builders?

A. Yes, sir. Everybody connected with the Triplex Company was. That was our principal problem, after we found out how to make the product.

Q. What efforts did you make in that direction during the year 1926? Confine yourself to the year 1926.

A. Does that question apply to my personal efforts or the company's?

Q. Your personal efforts, and also with respect to what you know about the efforts of your associates in the company.

A. You understand that while I am director and vice-president of the Triplex Company, I have never drawn any salary from the corporation, and never been an active employee. I am vice-president of the Chase Securities Corporation, which is an affiliation of the Chase National Bank, and my activities in the Triplex Company have been primarily as a large stockholder. In 1926, I talked to several of the automobile manufacturers, and their reaction was that they would be interested in Triplex, or laminated glass, when and if the public demanded it. It was explained to me to be a similar situation to the four-wheel brake, or any of the other new developments in the industry. The public had to demand a product that was more expensive than what they were using before the automobile producer would put it in as standard equipment. And after numerous such conferences with the automobile manufacturers, we [fol. 169] concentrated our efforts in 1926 largely on retail distribution; established a company in New York City, the Triplex Safety Glass Company of New York, which was or-

ganized by two friends of Mr. Haskell's, and they sold Triplex, retailed to our friends and everybody they could get in contact with, and established a lot of branches all over the surrounding territory for the retail sale of the product. Later, in 1926 and part of 1927, we opened similar offices in most of the major cities of this country, including Philadelphia, St. Louis, Cleveland, Chicago, San Francisco, Los Angeles, and several others. I don't remember exactly.

Q. When you went out to establish this demand, was there any public demand in 1926 for laminated glass on automobiles?

A. No. The public in the United States knew nothing about laminated glass. It had been produced and sold in England since 1914, and there were a few imported cars, such as Rolls-Royce, in this country, that were equipped with it, and there were a few dozen people, like Col. Kolb, in Philadelphia, who really knew something about it, and nobody else knew what it was or knew what it would do. We undertook to educate the public by the sales methods direct, and by some very expensive advertising. We went into display advertising in such magazines as the "Saturday Evening Post" and "Time" and "The New Yorker", six or eight of them, and did a lot of newspaper advertising and employed publicity agents, got a lot of news publicity. We put up Triplex signs in Atlantic City and various other places. We spent in those two years about a quarter of a million dollars on publicity.

Q. That was in 1926 and 1927?

A. That expenditure for publicity may have stretched over a little into 1928; but it was just a short time.

[fol. 170] Q. What was the occasion of discontinuing these expensive advertising mediums?

A. We made a contract with the Ford Motor Car Company, whereby they agreed to use Triplex as standard equipment on the Ford car, and that contract included a provision that wherever and whenever they advertised laminated glass, they would advertise the word "Triplex". That was one of the major considerations that induced us to make the contract with Ford. Ford brought out the model "A" car with Triplex windows, windshields on all of them, and spent $15,000,000 on advertising the car and featured Triplex safety glass, and we discontinued our advertising, on the theory that we were getting so much publicity

that any ordinary amount we could afford to pay for was insignificant and unimportant.

Q. What did you do during the years 1926 and 1927, with respect to the establishment of installation stations, and please define what you mean by "installation stations"?

A. These branches that we opened, or arranged to have opened, all over the country, were equipped to take a car off the street and replace the glass that was in it by Triplex. To start with the Triplex all had to be manufactured to size at the factory, which was a process that had always been followed in England. We found that was a great disadvantage, particularly in such places as Los Angeles, where the delay in getting the glass made to size was a real hindrance to a sale. A person who had an accident and got cut by the glass, they didn't want to wait for several weeks until they got the glass made up in Clifton and shipped out there, and maybe have it damaged in transit and have further delay. So we finally developed a process and built a special piece of apparatus so our distributors would buy stock size pieces of Triplex and cut them and instal them [fol. 171] at his shop, and we now have between 600 and 800 such distributors. It has grown up over such a period of time it is a little hard to draw the line as to where the operation was at any particular date.

Q. Do I understand from that you are unable to state how many of those installation stations you had, say in June, 1930, or even give an estimate of them?

A. I can't testify definitely to that point, of my own knowledge. I would rather have that brought out by somebody's testimony who really knows.

Q. Do you know whether the Triplex Safety Glass Company of North America sold any laminated glass to the Chrysler Automobile Company prior to June 1, 1930?

A. Yes, sir. In 1927, we made an arrangement with the Chrysler Company to put Triplex in their cars as optional equipment, and we sold and delivered to them several hundred pieces of glass during 1927. Mr. Walter Chrysler met Mr. Haskell and myself in New York during 1927, and bought an interest in our company. We offered to put him on the board of directors, but he declined, and later Harold Talbot, who was a director in the Chrysler Company and large stockholder in that company, and also a stockholder in our company, went on our board, and is still a director

in our company. In 1927, Chrysler adopted Triplex as optional equipment on his cars, and a great deal of publicity was given to it by our company and by the Chrysler Company. I have here a reprint of a news article on the subject, which I found in my papers yesterday.

Q. Did you or your company authorize the publication of this reprint that you refer to?

A. Yes, sir.

Q. And are the facts stated in there correct, to your knowledge?

A. Yes, sir.

[fol. 172] Mr. O'Shea: We offer the reprint copy in evidence as Master's Exhibit No. 13.

Q. Do you recall, Mr. Edwards, the date that this reprint, Master's Exhibit No. 13, was issued?

A. I can't give you the exact date. I believe, the best of my recollection is, it was during 1927, and the reason for that is that we state in here, "Manufacture of this glass in this country by an American company started last year."

Q. So that it was from that that you believe it was some time during the year 1927?

A. Yes.

Q. Do you remember when Chrysler adopted Triplex glass as optional equipment?

A. To the best of my recollection, it was in the late summer of 1927.

Q. And that this reprint, Master's Exhibit 13, was issued shortly after that adoption?

A. That is my recollection, yes.

Q. Do you recall any conversation with Mr. Chrysler, with respect to prices of laminated glass?

A. Yes, sir.

Q. What was the substance of that conversation, and give the date as nearly as you can.

Mr. Christy: The question is objected to, in so far as it may be calling for, or may be replied to, by assertions of a hearsay character.

The Master: We will reserve our decision until a later date, and overrule the objection for the time being. Exception noted to the defendant.

A. Some time during 1927, I talked to Mr. Walter Chrysler about the prices on Triplex, and told him that under this arrangement we had made for Chrysler to use Triplex, the price was to be $4.80 on plate, and $3.60 on sheet, and I explained to Mr. Chrysler that we based our price on the [fol. 173] English company's prices and on our estimates of cost, as there was no price for laminated glass in this country, and our experience on quantity production was so limited we had no practical experience in what our costs were going to be.

Q. Was there any discussion in that conversation with respect to any of your competitors' prices; and if so, state what it was, either then or later?

Mr. Christy: Same objection.

The Master: Same ruling. Exception noted to the defendant.

A. At that time, I do not recollect there having been any discussion about competitors' prices because there was nobody competing.

Q. Did you have any conversations with Mr. Chrysler later, say in 1928, with respect to prices?

A. Yes.

Q. If so, give the date and state what the substance of the conversation was.

Mr. Christy: I object to that, Mr. Master, for the same reason.

The Master: Objection overruled. Exception noted to the defendant.

A. After Chrysler stopped using Triplex and purchased laminated glass from Duplate, I went to see Mr. Chrysler in New York, and tried to induce him to use Triplex, and he said to me, "You admit yourself Duplate is made on the Triplex process, and we can buy it much cheaper than we can buy Triplex; therefore, it is my duty to the Chrysler Company, irrespective of my personal stock interests in the Triplex Company, to buy from Duplate, and I am going to do it as long as their price is cheaper than yours."

[fol. 174] Cross-examination.

By Mr. Christy:

Q. What was the date of that last conversation you just mentioned?

A. It was after Chrysler had been using Triplex and adopted Duplate; but how to fix the exact date is a little difficult, Mr. Christy.

Q. Can you give me the year?

A. I think it was in '28, and I think it was in the summer time, because I remember going to his office, and the windows were all open.

Q. That is as near as you can fix it now, offhand?

A. I can refresh my memory by reference to the records, if that is important.

Mr. Christy: I would like to have the date of this conversation, but I assume it will be fixed more definitely through somebody else.

A. (Continued.) My recollection is, I wrote a memorandum on my talk with Chrysler and sent it over to the factory right after that talk. If I can find that memorandum I can give you the exact date.

Q. Let me have the date and refresh your recollection from your memorandum.

A. To the best of my recollection, I think it was October of 1928.

Q. Referring to this Exhibit No. 13, the advertisement of the Chrysler Company, what did this optional arrangement amount to? Did it agree to the Chrysler Company's using a large amount of laminated glass?

A. They agreed to furnish a car equipped with Triplex to anybody who wanted to buy a car in that condition, at an extra price, and we furnished the Chrysler Company with several hundred pieces of glass for that purpose, and also furnished glass to the people who were building bodies for Chrysler.

[fol. 175] Q. That is what I mean. The result was that you furnished several hundred pieces?

A. Yes, sir.

Q. But you did not, under this arrangement, attain what, to use your expression, is quantity production?

A. No, sir.

Q. You referred to a contract which you made with Stutz. Have you that contract here or a copy of it?

A. Yes. (Contract handed to counsel for defendant.)

Q. What does this expression "utility quality" mean in this contract?

A. Sheet glass as compared to plate glass.

Q. By "sheet glass" you mean what is usually called window glass?

A. Yes.

Q. And how does the sheet glass of the size used in this laminated glass compare in price with the quality of plate glass which you used for your laminated glass?

A. The price comparison?

Q. Yes.

A. As of what date?

Q. Well, the date of this contract, December, 1928.

A. The sheet glass costs somewhere between 20 and 30 per cent, as much as plate. That is a hard question to answer, because the price on both of them was fluctuating all the time.

Q. Put it this way; to use an extreme example: If the quality of plate glass which you used cost $1.00 per square foot, sheet glass for the same purpose would cost about from thirty to thirty-five cents?

A. That is correct. And maybe this would classify it: When we started and bought our glass abroad, our plate cost about seventy-five cents, and we could buy sheet glass [fol. 176] in this country for about seven and one-half cents. Today plate costs between twenty and thirty cents, and sheet still costs about seven and one-half cents. It all depends on quality and size and quantity.

Q. What quality of glass did you use in laminated glass which you sold to the Chrysler Company?

A. That was standard quality plate.

Q. You didn't use any sheet glass at all in that?

A. I don't think we ever sold Chrysler—at this time you are talking about, we ever sold Chrysler any Triplex made of sheet glass, but I am not sure about that.

Q. Well, coming back to the Stutz. Referring to this contract which you have produced of December, 1928, what did you sell Stutz—both standard and utility?

A. Yes, sir. You mean, what we shipped Stutz?

Q. Yes.

A. Both standard and utility. To start with, the larger percentage of it was utility, made from sheet glass, and later the larger percentage of it was plate.

Q. And that was furnished on specifications from Stutz, I suppose, as they might order?

A. Yes, sir.

Q. Did you ever furnish Stutz under this contract any laminated glass made up of one sheet of plate glass and the other of what you call sheet glass?

A. I think we furnished Stutz some small quantities made that way, but they were only samples, as I remember.

Q. Didn't Stutz complain to you—not to you personally, but that your company was filling its orders for your standard quality with laminated glass made of one sheet of plate glass and one sheet of sheet glass?

A. The only recollection I have of such a thing ever happening was in connection with a different automobile com- [fol. 177] pany and a different manufacturer of laminated glass. I don't remember of that having happened in the Stutz case with us. I don't think we ever misrepresented our product.

Q. You have referred to your contract with the Ford Company. I understood you to testify in the hearing in the District Court, that that was of the nature of a manufacturer's license?

A. There was such a provision in the contract.

Q. Can you produce that contract?

A. I think I can answer any questions on that contract that you care to ask.

Q. You haven't a copy of it here?

A. No.

Mr. Christy: I call on my opponent to produce a copy of this contract.

Q. The laminated glass which Ford used in accordance with this license contract, which will be produced, was mainly what you have called the utility quality, wasn't it?

A. To start with, Ford used Triplex made of sheet glass in the windshields of the Ford cars, exclusively. He has since changed to the use of plate glass for that purpose. He has always used Triplex made of plate glass in the Lincoln car and in certain models of the Ford, as specifically the Ford town car.

Q. Can you tell me offhand approximately the date of your contract with Ford?

A. October, 1927.

Q. Do you consider that a contract with so large a prospective user of laminated glass as Ford, under which it was contemplated that laminated glass made of sheet glass would be very largely used, made just at the time when you

were exploiting your more expensive product, would reflect very favorably upon the prices which you would be able to obtain for your higher quality of plate glass products?

[fol. 178] A. I don't understand that question. You are asking what I consider now or what I considered at the time we did it?

Q. Well, both.

A. Our contract with Ford was a cost plus contract. It doesn't specify that he is to use sheet glass. He told us that he wanted to use sheet glass to start with, to see how it would work, and also he couldn't buy enough plate glass, or couldn't produce himself, to take care of his requirements at that time. He told us he was going to make thin plate, that other people were in the process of producing commercial quantities of thin plate, and that he might at any time change from sheet to plate. We turned the process and all of our knowledge over to Ford, in return for a contract for half of his requirements on a cost-plus basis for four years, and in return for a contract that forever any Triplex or laminated glass that the Ford Company used would be advertised as Triplex, that forever any improvements in the process that were developed in his plant, would belong to us, and if they were patentable, the patents would belong to us, he to retain shop rights, but he pledged himself to use Triplex forever, and he only pledged to buy half of his requirements from us for four years. But our consideration of the Ford contract was that it put laminated glass over, and that it so proved. Whether that is an intelligent answer to your question or not, Mr. Christy, I am trying to give you the facts.

Q. Well, Ford started out to use on a large scale laminated glass of a quality which you agreed to furnish in this Stutz contract at $1.45 a square foot. Would you expect to be able to maintain with other automobile manufacturers prices for laminated glass made of plate glass, running $3.00 and $4.00 a square foot?

[fol. 179] A. Certainly.

Q. To what automobile companies were you selling laminated glass down to, say, February, 1928, in commercial quantities?

A. Ford, Lincoln, Chrysler, Pierce Arrow, I think. You are going to have our sales representative and the active president of the company on to testify, and if it doesn't

defeat your purpose, I would rather not answer that, because I don't think I know. I could look it up from the record.

AMORY L. HASKELL, a witness produced on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. What is your position with the Triplex Safety Glass Company?

A. President.

Q. Have you been president since its inception?

A. I have.

Q. I show you a contract and ask you if that is your signature at the end of that contract?

A. That is.

Q. Is that the contract which you entered into with the Stutz Automobile Company as or about the date stated on the contract, December 20, 1928?

A. That is correct.

Mr. O'Shea: I offer the contract identified by the witness as Plaintiff's Master's Exhibit No. 14.

Q. Were the terms of that contract carried out by you?

A. They were carried out by our company, yes.

[fol. 180] Q. Were they fulfilled by the Stutz Automobile Company?

A. The Stutz Company agreed to purchase their year's requirements from us; but after, I should say, five or six months of the contract, we discovered that they were buying glass on the outside.

Q. Did you find out from whom they were buying that glass?

A. From Duplate. Some of the glass was bought from Duplate by one of their custom body builders, and supplied to Stutz with their cognizance.

Q. What was the situation in this country with respect to a supply of glass suitable for use in manufacturing laminated glass when you organized your company?

A. There was no source for one-eighth inch glass over here, and we had to purchase glass from Europe, in order

to get sufficiently thin glass, so that when you laminated two pieces together, plus the celluloid, the finished product would be thin enough to go into the standard channels used in motor cars in this country.

Q. And did you make any efforts to find any source in this country of plate glass suitable to be used in the manufacture of laminated glass?

A. Mr. Edwards had known Capt. Brown before I became interested in Triplex, due to his previous association in the glass industry, and he took me out to Pittsburgh, and together we visited Capt. Brown, and Capt. Brown called in Mr. Higgins, who at that time was sales manager, I believe, or chairman of the commercial department, I believe was the title.

Q. Of what company?

A. Of the Pittsburgh Plate Glass Company. And we went to see them with the idea in mind of getting them to produce one-eighth inch, or scant one-eighth inch, plate glass for us. Capt. Brown said their plants were all very [fol. 181] busy at that time, and that he didn't think the laminated glass business would amount to anything for at least ten years, that they had in the back of their minds to produce some one-eighth inch plate glass for use in windows, on the theory that by producing one-eighth inch plate glass at a cheaper price than the quarter-inch plate glass, they could supplant some of the window glass that was being used; also that this thin plate glass could be used in the same frames as the sheet glass that was then being used, and there wouldn't have to be so much changing of the counterweights, in order to make the windows operate. At that time he said it might be a year or it might be longer; that it would depend on the demand for the thicker plate glass which was occupying their capacity at that time.

Q. When were you first able to purchase plate glass suitable for use in laminated glass from any American source?

A. As a result of later conferences with the Pittsburgh officials we got a small sample shipment of some plate glass that they had made on the first run of thin plate; but they were not in a position to supply it commercially until some time in 1928.

Q. That is the nearest you can fix it from your recollection?

A. The nearest I can fix it.

Q. What was the first intimation you had of a competitor entering into the laminated glass business in America?

A. Of course, I knew Indestructo and Saftee were already in the business, and I knew that when I went over to England with Mr. Edwards to sign up the American rights. You mean, further competitors?

Q. Any other competitors than those two.

A. The first indication I got was from Mr. F. P. Davis, who was president of the du Pont Viscoloid Company at [fol. 182] that time, and from whom we were buying most of our celluloid, and they told me they had been approached by the Pittsburgh Plate Glass Company with the request that they join with the Pittsburgh Plate Glass Company in forming a laminated glass manufacturing company.

Q. Do you remember when that intimation came to you—what year or time of the year?

A. It was the latter part of December, 1927.

Q. Now, with respect to the Saftee Glass Company and the Indestructo Company, what did you learn as to their position in the laminated glass business in America at or about the time that you went into this business?

A. Mr. Edwards and I met Mr. Bartlestone. He had heard that we were interested in the American rights for Triplex, and he got in touch with us to see if we wouldn't buy out his business. He offered to sell it for $40,000 or $45,000—I can't remember which—it was in the low forties at any rate—providing we would give him a year's employment, and at that time we looked into the situation very carefully. We went down and looked over his plant, and I consulted with some of my friends in the du Pont organization, to find out just what they thought of his products, in view of the fact that they had been selling him celluloid, and the general consensus of their opinion was, his product was not commercially satisfactory. Our patent attorneys advised us there was nothing he had that would strengthen our patent situation, or nothing we had that would infringe anything he had. So we decided not to buy out his company. I knew of the Saftee Glass Company through Mr. Edwards. He had been over to see their plant. I didn't go down. That was before we actively became interested together in Triplex, and a short while after we were operating I met Mr. McCusker and suggested that if he was over [fol. 183] in New York any time, that he drop over and see

us, and we thought there might be some benefit derived from having a frank discussion of the laminated glass industry, and he came over in 1927 and visited our plant, and at that time I showed him through the plant, and he said we appeared to be very busy, and I asked him what they were doing.

Mr. Christy: I object. That is all outside.

Mr. O'Shea: I think this is all pertinent on the condition of this industry at the time he went into it.

The Master: We will hear it, and I will determine later whether or not it is admissible. Exception noted to the defendant.

A. (Continued.) I asked Mr. McCusker what their sales had been in automobile use, and he said——

Mr. Christy: I object again. That is pure hearsay.

Mr. O'Shea: This is under the same theory as the other cases. It seems to me it is pertinent.

The Master: Answer the question.

A. (Continued.) He said that he did not believe they had equipped more than 150 cars in the United States; most of their business had been bullet-proof glass and glass for gas masks and goggles during the war.

Q. Do you know what your capacity was during that time, or, let us say, in July, 1927?

A. Our capacity was approximately 500 lights a day.

Q. And how much would that be, translated into square feet?

A. About three square feet to a light, on an average.

[fol. 184] Q. So your capacity at that time was in the neighborhood of——

A. 1500 square feet a day.

Q. Do you recall a conference in May, 1928, with any of the executives of the Pittsburgh Plate Glass Company?

A. Not in May, 1928.

Q. You recall no such conference?

A. No.

Q. Were you present at a conference between yourself and Mr. Edwards, at which there was present also Mr. Wherrett and Mr. Higgins, in or about October, 1928?

A. I do.

Q. Where was that conference held?

A. It was held in Mr. Wherrett's office in Pittsburgh.

Q. Will you give the substance of that conference and what was the occasion of it—subject discussed?

A. We had found through our Detroit representative and through our own sales manager that the Cadillac business had gone to Duplate at a better price than we had quoted, and that was followed a little later by Chrysler——

Mr. Christy: I object to that as not responsive.

Q. Give me the conversation between you and Mr. Edwards and Mr. Wherrett and Mr. Higgins.

A. Mr. Edwards and I saw Mr. Higgins and Mr. Wherrett with the idea of finding out what their future policies would be.

Q. Just state the substance of the conversation.

A. The substance of the conversation was, "You fellows have come into this laminated glass business and you have taken business from our previous customers, apparently at any price. We would like to know just what your future [fol. 185] policy is, as to the merchandising of laminated glass"; and they made the statement—Mr. Higgins, I believe, was the actual spokesman—that it was to be their policy to get one car in each price class. That is, something in the lower price class, like Chevrolet, and something in the middle price class, like Buick, Nash, and Chrysler, and something in the higher price class, like Pierce-Arrow, Cadillac, Lincoln—one of those—to adopt safety glass all around. They had offered to sell at various prices, Mr. Higgins said, and they expected to keep after the situation until they struck a price at which they thought these men would be interested, and they felt that when they once got a car completely equipped with laminated glass in each of those price classes, that the rest in that price class would have to follow. In which case they could get a decent price from those other manufacturers, once they had been forced into the use of laminated glass through one of their price class adopting it.

Q. During the years 1926 and 1927, where was the Triplex Safety Glass Company of North America factory located?

A. In Hoboken, New Jersey.

Q. What was the capacity of that factory at that time?

A. 500 lights a day, approximately.

Q. Did you subsequently move the factory from Hoboken, New Jersey?

A. When we signed the contract with Ford, we realized it would be impossible to turn out the quantity required by Ford in our then existing factory; so we secured another factory in Clifton, New Jersey, which we started in the spring of 1928.

Q. Have you in mind what the floor capacity of that factory is?

[fol. 186] A. The factory at Clifton?

Q. Yes, the factory at Clifton.

A. The factory at Clifton has a floor capacity of 305,000 square feet, I believe, something just over 300,000 square feet. I know that our Hoboken factory had 21,000 square feet in our original factory, and when our business increased we had to lease another floor in this factory building which added 21,000 more square feet to our space.

Q. At what prices did you sell your product during the years 1926 and 1927?

A. We had a list price of $8 a square foot for plate or standard quality Triplex, and $6 a square foot for sheet or utility Triplex. That was the list price to the consumer, from which our distributors got a 40 per cent. discount.

Q. So you sold to distributors at $8 per plate and $6 per sheet with a 40 per cent. discount?

A. That is correct.

Q. And those prices continued for how long?

A. Those prices continued until Duplate was announced and they set a lower list price.

Q. Were those prices based on quantities, or were the sales in those years at those prices, irrespective of quantities?

A. Those were irrespective of quantities to distributors.

Q. And consumers?

A. The consumers would purchase at the list price if they were retail. That was the maximum discount that we gave to anybody.

Q. Had you received any standard equipment orders during the years of 1926 and 1927?

A. We didn't receive any during 1926, because our factory was only started operating. We turned out our first piece of glass in July '26, and it took us until October to [fol. 187] get the prices fully adjusted, and in the balance of that year we really started deliveries in October, 1926. In 1927, we received an order for standard equipment on a

special phaeton body that the Chrysler Company were bringing out. Each one of those were to have two windshields—the tonneau windshield and the front windshield —and I got that business through Mr. Keller, of the Chrysler Motor Car Company, whom I had known previously in General Motors.

Q. Do you recall at what price that order was sold?

A. I do not recall the exact price. We have those figures.

Q. Do you know Mr. George Hunt?

A. I do.

Q. Is he connected with your company?

A. He is our Detroit representative, handles the sales of Triplex in the general Detroit area.

Q. How long has he been connected with you?

A. He has been connected with us since the inception of our sales efforts.

Q. Do you recall about when that was?

A. The contract between us, as I recall it, was signed in August of 1926.

Q. So that he has been with you since the beginning of your company, practically?

A. He has.

Q. Will you please state what efforts you personally made to induce the Ford Motor Company to adopt your Triplex glass?

A. Naturally, when we started our sales efforts, I was traveling all over the United States, working with the establishment of distributors, and also making calls on the various motor car concerns; quite frequently with Mr. Hunt in the Detroit area, and sometimes with our sales manager [fol. 188] in other points. We attended, naturally, all the important motor car exhibits——

Mr. Christy: That is not called for by the question. I object as not responsive to the question.

Mr. O'Shea: He is stating his efforts.

The Master: We will hear what the witness has to say, and I will determine later whether it is admissible.

A. (Continued.) As a result of attending one of these exhibits, we met a Mr. Henderson, who at that time was sales manager of Lincoln, and he suggested that we drop in to see a Mr. Hughes, who at that time was an engineer

at Lincoln, with respect to using Triplex glass in the Lincoln car. That was the Chicago Automobile Show in 1927, which took place the last week of January and the first week of February. It generally runs into those two weeks. We saw Mr. Hughes and laid before him the story of Triplex. He said he had been over in England and knew Triplex, wanted samples to test, and we gave them, and he said that he would like to have a complete story on Triplex; that he could give Mr. Edsel Ford. So I went back and worked up a booklet of some eighty or ninety pages, with photographs of our factory, photographs of cars that had been in collisions, and a general excerpt of comments, both in the United States and abroad, on Triplex and what it had done. That was sent to Mr. Edsel Ford, and from that point on, where we were really driving at Lincoln, because Lincoln was one of the highest price cars in the United States, and theoretically a logical candidate for Triplex glass, due to its cost, the idea crept into the Ford organization, and when they brought out their new car they knew all about [fol. 189] Triplex from these previous efforts we had made, and also from such efforts Mr. Hunt had been making in Detroit with the people he knew in the Ford organization.

Q. Did those efforts result in this Ford contract?

A. Those efforts resulted in the Ford contract.

Q. Did the Ford Motor Company adopt Triplex on the Lincoln car?

A. The Ford Motor Company adopted Triplex on the Lincoln car, and also in the windshield of the new model "A" Ford car.

Q. Does the Lincoln car still use the Triplex glass?

A. The Lincoln car still uses Triplex throughout.

Q. Do you recall at what prices you sold the Ford Motor Company its glass for use on the Lincoln car, first, after it was adopted?

A. I would prefer to have those figures brought out exactly. I remember the window-light price was $3.26 a foot, and the windshield price was slightly higher than that, I think about $3.50 a foot.

Q. You don't recall exactly.

A. No, I don't recall exactly.

Q. Assuming that those were the prices, do you recall how long they prevailed?

A. They prevailed until the latter part of 1929.

Q. And were then reduced?

A. They were then reduced.

Q. And what was the reason for reducing the prices at that time? I am speaking now of the Lincoln glass.

A. The Ford purchasing department notified us that quotations were being made outside at lower prices, and that they thought that, although we were using silvering quality glass in Lincoln, and their inspection was very stiff, that we ought to be able to make a reduction to bring [fol. 190] our prices more nearly in line with prices quoted on the outside.

Q. Do you recall what that reduction was, or will we have to get that from the sales department too?

A. I think you had better get that from the sales department. I can't remember all these figures exactly, and I think it would be better to bring out the exact figures.

Q. Now, did you have any conversations with Mr. William Fisher, of the Fisher Body Corporation?

A. I have had a great many conversations with him.

Q. Can you state when those conversations started, and for what period of time they progressed?

A. Well, they started shortly after I became interested in Triplex. I knew the Fisher Brothers when I was in General Motors.

Q. You mean, after the inception of your company—the Triplex Safety Glass Company?

A. Yes, sir.

Q. Did you have any conversations with Mr. Fisher with respect to prices?

A. I had a lot of conversations with him at the time he was considering laminated glass for the Cadillac and La-Salle cars.

Q. At that time did you quote him your prices for standard equipment on his business?

A. At that time we did, yes.

Q. And later on at any of those conversations was there any discussion as to the prices, say in 1928, after you began to meet with competition in this business?

A. In 1928 Mr. Fisher referred a number of times to the fact that the Pittsburgh Plate Glass Company had joined with the du Pont Company and formed a laminating concern, and said that they were quoting him very attractive prices.

[fol. 191] Q. Did he state what those prices were?

A. He did not.

Q. Do you know whether, prior to 1928, you had sold any laminated glass to the Fisher Body Corporation?

A. We had sold quite a lot of them for optional equipment on various cars. Quite a few Cadillacs had been bought with Fisher equipment, which the Fisher Body Company, through Mr. William Fisher, had agreed to install at their body plant. At least a portion of that time they were making those bodies at Chrysler, and Chrysler having adopted Triplex as optional equipment, and having notified all their dealers, requested Fisher Body Company to carry a stock of glass at their plant which could be put in the Fisher bodies to be supplied by sales by Chrysler. These sales were actually effected by the Fisher Body Corporation.

Q. Do you know a corporation known as the Fleetwood Corporation?

A. I do; at least, I did not know whether that was the exact corporate name.

Q. It is the name it is known as in the trade?

A. Yes, it is the name it is known as in the trade.

Q. Is there any connection between the Fleetwood Corporation and the Fisher Body Corporation, that you know of?

A. The Fleetwood Corporation was bought out by the Fisher Body Corporation, and now is either a subsidiary or a division of the Fisher Body Company.

Q. Please state generally with what other companies you attempted to sell your glass during the year 1927—what other contacts you had made?

A. Oh, we contacted with Marmon and Stutz, Pierce-Arrow—all the manufacturers around Detroit—Hupmobile, Hudson, Buick at Flint, Chevrolet, Reo at Lansing, Olds-[fol. 192] mobile at Lansing, Franklin at Syracuse, and of course the Chrysler.

Q. Make any contact with the Studebaker Corporation?

A. Studebaker also; Dusenberg—practically every motor car concern. I don't know any we missed. If we did, it was without our knowledge.

Q. I think you made a license with the Johnston Glass Company, of Hartford City, Indiana. For what period was that license granted, if you know?

A. For twenty years.

(Recess until 2 o'clock P. M.)

Afternoon Session

AMORY L. HASKELL, resumes the stand.

Direct examination (continued).

By Mr. O'Shea:

Q. I show you a letter and ask you if you received that letter?

A. I did.

Mr. O'Shea: I offer the letter in evidence as Plaintiff's Master's Exhibit 15, letter being dated May 20, 1929.

Mr. Christy: Object to the offer; purely hearsay and not evidence. Any authority that has to do with state of mind of the trade, or anything of that kind, has nothing to do with specific statements of that character.

The Master: We will receive it in evidence, and decide later whether it is admissible.

[fol. 193] Cross-examination.

By Mr. Christy:

Q. Did you give the date of your license to the Johnston Company? If not, will you do it, approximately?

A. We will produce it.

Q. Can you tell me approximately now?

A. Approximately in the end of the first quarter of 1929, as I remember.

Q. I believe you said at the trial of this case in the fall of '29, that it was during the same year, 1929?

A. I know it was shortly after the Chicago Automobile Show.

Q. And you say that license was to run for twenty years?

A. I do.

Q. You don't mean twenty years under this patent in suit?

A. That was part of the license agreement.

Q. There were a lot of other things in it.

A. As I understand it, the contract is going to be produced.

Q. I am asking you now what were the other considerations besides the right to manufacture under this patent?

A. They agreed to sell at no higher prices than we might stipulate—the glass manufactured under this license. They agreed to turn over to us any developments they might make in the process through their use of it, and we would have the right to patent anything that would be patentable. They were to send a man of theirs down to our factory where we were going to try out some modifications they had on automobile production. They were manufacturing a small quantity of glass at that time in their own factory, and we had a lot of business going through, and we could [fol. 194] use it on that volume that was going through our factory.

Q. So that even down to the end of the license period, twenty years from 1929, and sixteen years after the expiration of this patent, they were to adhere to your prices, were they?

A. For any glass manufactured under our patents.

Q. There were some other patents you had?

A. We had the various patents we had gotten from the British Company.

Q. How many of them?

A. I don't recall the exact number. They are all cited in the agreement.

Q. But this patent was not the only one by any means?

A. There were other patents.

Q. And I believe you stated at the trial that the product to the Johnston Company under its license was limited to 10 per cent. of your production.

A. I believe they were limited to a million square feet a year, not to exceed 10 per cent. of our production.

Q. What was your production at the time the license was made?

A. I think it was around six or seven million feet.

Q. Both plate glass and sheet glass?

A. Yes, sir.

Q. And about what proportions?

A. Well, I should think that the proportion of sheet glass at that time probably ran as high as 70 or 75 per cent. in actual foot area.

Q. And was all that sheet production for the Ford Company?

A. Not all of it, no.

Q. The greater part of it?

A. The greater part of it, yes.

[fol. 195] Q. Was any of this sheet production sold for supplying any automobile manufacturers except the Ford Company?

A. We sold some to the Yellow Truck and Coach, for use in their taxicabs.

Q. But not for any private cars, except to the Ford Company?

A. We sold some through our distributors for putting in private cars.

Q. I mean, not for automobile manufacturers?

A. No, not for automobile manufacturers.

Q. You say you went into your new factory at Clifton in the spring of 1928. Is that right?

A. That is right.

Q. And before that time your company wasn't in position to make any contract with any automobile company to supply them with laminated glass, as standard equipment, were they?

A. As far as factory capacity goes, you mean?

Q. Yes.

A. Not without increasing our space.

Q. And not without moving into a new factory from the one you were then occupying, could you?

A. Our original factory was located in what they call the Hoboken terminal area. It was a manufacturing building that could supply steam and power and any operations you might need for working in a factory, and I think the building had something like ten or twelve stories in it, and there were a number of floors for lease which we could have had if we had to expand. We did expand once and took another floor. We started on one floor and took another as our production grew.

Q. Such an expansion would not have been commercially reasonable if you were satisfying the demands of a large automobile company for standard equipment?

[fol. 196] A. If we had received such a contract, we undoubtedly would have preferred to have a factory that was possibly subject to a more convenient layout; in other words, we were limited to 21,000 square feet on a floor, and it would have been more convenient to have had a larger space on one floor.

Q. Now, with respect to this group or ring of purchasers, as I recall it, namely, the Fisher Body Company, the Fleetwood Body Company, and the manufacturers of the Cadillac and La Salle cars, did you ever, before the spring of 1928, quote them a price for any substantial order of laminated glass?

A. Before the spring of 1928?

Q. Before the spring of 1928, when you moved to Clifton?

A. We had quoted them prices ever since we started calling on them with a view to getting them to put it on their standard equipment.

Q. Did you quote them a price for standard equipment?

A. We did.

Q. What was it?

A. I don't recall exactly what the quotation was, but those figures can be produced.

Q. Will you see that they are produced?

A. I will.

Q. Now, as to these other companies which you have named, namely, the Stutz, the Chrysler, and so on, I will ask you the same question: Before you moved to your Clifton factory, did you quote any of these companies a price for laminated glass to be furnished in commercial quantities, or, as you put it, of standard equipment? And if so, when and what was the price?

A. We quoted all those factories, and that entire schedule, as I understand it, is going to be brought out by our treasurer. I have a general idea as to the price, but obviously four or five years ago it is difficult to recall in your [fol. 197] mind just the various steps as to dates. That will all be supported by our files.

Q. Mr. Haskell, do you control the selling policy of your company?

A. As president, obviously.

Q. Do you mean directly or as a consultant?

A. As president of the company, naturally I am interested in all policies of the company.

Q. And you could veto it if you wanted to?

A. I could.

Q. Say prior to 1929, did you make any price distinction for your products as between different customers?

A. Not that I recall. The only distinction we ever made was on the question of the different brands of glass; that is, the distinction between plate and sheet Triplex and the differentiation between classes of buyers, such as the automobile manufacturers, our distributors, retail purchasers, boat builders, airplane builders, custom body builders, but in any one classification we sold everybody at the same price.

Q. Take what we call distributors. Do you mean by that concerns to whom you sold at wholesale, who would retail their product directly to users?

A. Some would retail directly and some would be sold through their sub-dealers.

Q. Did you make any distinction between these distributors and automobile manufacturers, or people who built bodies for automobile manufacturers?

A. We had a special price for automobile manufacturers.

Q. That was lower than to your distributors?

A. That was lower than to the distributors.

Q. Did you make any distinction of price based on quantity of production?

A. We did eventually.

Q. That was after the first of 1929?

[fol. 198] A. No, I believe that we made quotations based on quantity before 1929.

Q. Can you think of any example?

A. We have all those figures just as they are taken from our files, and they will be introduced later.

Q. Well, can you think of one now as an example of such difference in price based on quantity?

A. I know that we differentiated between the amounts, so much per day at one price and a larger volume at another price.

Q. That was between different customers of the same class—for example, two automobile manufacturers?

A. Any automobile manufacturer had the privilege to buy at those prices, based on their respective quantities.

Q. You have spoken as having had to consider Duplate as a competitor. What other competitors did you have after, say, the first of 1928, if any?

A. After the first of 1928? Of course, there was Indestructo and Saftee had already been in existence, and there was the Johnston Glass Company; Libbey-Owens later came into existence, but that was some time after.

Q. About when did Libbey-Owens come into the market?

A. As I recall, somewhere in the middle of the summer of 1929.

Q. Did you consider that the Libbey-Owens product was covered by this patent in suit?

A. Not by this patent in suit.

Q. You had to meet the prices of that competitor as well as Duplate, as you say, did you not?

A. Eventually we met the established price.

Q. But as compared with Saftee and Indestructo, Libbey-Owens was a substantial competitor, was it not?

[fol. 199] A. It was.

Q. Were there any others of that grade besides Duplate and Libbey-Owens?

A. American Window Glass came in the picture about the same time Libbey-Owens did, as I remember, but they have never been very much of a factor.

Q. And they only competed for the cheaper sheet glass product, did they not?

A. I believe they make plate too.

Q. That may be, very recently.

A. Most of their sales have been in the sheet. When I say I believe they make plate, I mean they make plate laminated. I understand they buy their glass from the Pittsburgh Plate Glass Company.

Q. How much product has the Johnston Glass Company reported to you under its license?

A. I haven't got those figures, but they can be produced.

Q. Almost infinitesimally small?

A. Well, small as compared with our volume. They have been making, I imagine, in the neighborhood of one or two hundred pieces a day, on the average.

Q. This Stutz contract has a provision which reads as follows: "The seller shall not, without first obtaining the

written consent of the buyer, in any manner advertise, or publish the fact that the seller has contracted to furnish the buyer the articles herein mentioned, and for failure to observe this provision, buyer may have the right to cancel this agreement, without any further liability thereon." Do you know why that provision was inserted?

A. The only thing I know about that whole contract is that Mr. Gorrell told me that that was the standard form of contract they used with everybody. I believe it was originally drafted by the General Motors Corporation for use of their supplies.

[fol. 200] Q. Then there was no particular reason for its being in this deal?

A. Not that I know of, because they were very anxious to have us give all the publicity to it we could. They asked us to send sample shields to all their sales rooms, with the Triplex decalcomanias on them, and give all the publicity in our advertising or publicity work that we could.

Mr. Christy: Since the witness has testified respecting prices and dealings with the Ford Company, I think I have the right to question him regarding these with the Ford contract before me. This contract is not here today. I understand that other witnesses will be called, of whom I can ask the same questions, and I do not wish to detain this witness unnecessarily. I do, however, claim the right to have him recalled. If that is the understanding, I have no further questions to ask of him at this time.

Mr. O'Shea: Counsel for plaintiff states that Mr. Haskell will hold himself in readiness, subject to recall at any time Mr. Christy so desires. Mr. Haskell will require at least one day's notice, and possibly longer, in view of the fact that his headquarters is in New York. Subject to his getting here at a reasonably convenient time, he will be available at such a time as Mr. Christy desires.

Redirect examination.

By Mr. O'Shea:

Q. In your cross-examination, Mr. Haskell, you stated that one of the terms of the Johnston contract was that they would not sell at prices higher than you. Are you clear in your mind?

A. I meant to say lower.

[fol. 201] Q. In your cross-examination, you spoke of the American Window Glass Company as entering into the competitive picture some time in 1929. Do you know whether your company has a suit pending against that company, the American Window Glass Company?

A. We have.

Q. Is this same Benedictus patent in suit?

A. Under the same patent.

Q. Mr. Haskell, did you have any negotiations or conversations with the executives of the Pittsburgh Plate Glass Company, with respect to the price they were charging you for plate glass?

A. I had a number of talks with Mr. Higgins in the past, and more recently with Mr. Judson. Mr. Higgins always made the statement to me in the past, we were getting the glass at the same price that they were selling glass to their own laminated plant.

GEORGE H. HUNT, a witness produced on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. Where do you reside, Mr. Hunt?

A. Birmingham, Michigan.

Q. Where do you conduct your business?

A. In Detroit.

Q. Are you connected in any way with the Triplex Safety Glass Company of North America?

A. Yes, sir.

Q. In what capacity?

A. Detroit representative.

Q. And how long have you been working for the Triplex Safety Glass Company of North America, in that capacity?

[fol. 202] A. Since August, 1926.

Q. Will you just give us a short description of what your duties are, as the Detroit representative?

A. I am to call regularly and actively and continuously among all the automobile manufacturers, body builders, aircraft manufacturers, trying to sell them Triplex safety glass; trying to sell these manufacturers Triplex safety glass—that is, in the Detroit district primarily.

Q. Will you please state what automobile manufacturers and body builders are included within your territory?

A. Ford, General Motors Corporation, Fisher Body, Murray Body, Briggs Manufacturing Company, Chrysler Corporation, Hupp Motor Corporation, Willys Overland, Reo, Hudson-Essex. I believe that covers the principal ones.

Q. Is Packard included in that?

A. I didn't name Packard, but Packard is in my territory. I work on the Packard.

Q. Graham Paige?

A. Yes, Graham Paige.

Q. Motor Products?

A. Motor Products, Ainsworth Manufacturing, Joseph N. Smith.

Q. How about the Dodge Company?

A. Dodge, which has since become part of Chrysler.

Q. Le Barron?

A. Le Barron is part of the Briggs Manufacturing Company.

Q. Now, what automobiles are included in the General Motors group?

A. Cadillac, La Salle, Oakland, Pontiac, Buick Motors, Oldsmobile, Chevrolet, Fisher Body, General Motors of Canada.

[fol. 203] Q. How about the Yellow Truck? What is that?

A. Oh, yes. General Motors Truck. That has become the General Motors Truck. They merged the Yellow Coach and Cab into General Motors Truck, as I understand it.

Q. Is Studebaker Company in your territory?

A. They are not in my territory, but I work with them frequently.

Q. You make contact with them?

A. I solicited them on Triplex Safety Glass.

Q. How about Pierce Arrow?

A. The same with Pierce Arrow. They are not in my territory, but I called at their plant frequently and solicited Triplex safety glass business with them.

Q. During the years 1926 and 1927, were you in constant contact with the automobile manufacturers and body builders which you have mentioned?

A. I was.

Q. And with whom were you accustomed to discuss the question of laminated glass when you were in contact with those automobile manufacturers that you have mentioned?

A. The executives of the company, the purchasing departments, the body engineers; those were the main men I solicited on Triplex safety glass.

Q. Were you in touch from time to time during this period with the Fleetwood Corporation—if that is the correct name?

A. Through Fisher Body and and through an occasional call with Mr. Sabero. Mr. Sabero was president of Fleetwood.

Q. Was there some connection between Fleetwood and Fisher Body?

A. Fisher Body Corporation owned the Fleetwood.

Q. I direct attention particularly, then, at this time, to the Fisher Body Corporation and Fleetwood Corporation, particularly to your efforts to interest those two corpora- [fol. 204] tions. Can you state from your recollection the men of those two corporations with whom you were in touch during this period?

A. Most of my efforts were centered on Mr. W. A. Fisher at the Fisher Body Corporation in Detroit.

Q. And you had various conversations with him with respect to the question of selling him the Triplex Safety Glass?

A. The Triplex glass; yes, sir.

Q. And will you now please state what the substance of those conversations were with respect to your sales of the Triplex glass?

Mr. Christy: I object to that question, in so far as it calls for hearsay evidence. Presumably Mr. Fisher is available as a witness, and can be called.

The Master: We will hear the answer and decide later as to its admissibility. Exception noted to defendant.

A. I had a number of visits with Mr. Fisher, starting with 1927, and carrying on through 1928. Mr. W. A. Fisher agreed that he would put non-shatterable glass on the Cadillac and La Salle cars, made at the Fleetwood plant, and in the late spring of 1928, Mr. Fisher confirmed this agreement in one of my visits in his office with him. We later secured some of those orders, in which they equipped these

Cadillac and La Salle bodies made by the Fleetwood Corporation.

Q. Did you quote prices to Mr. Fisher for the Fisher Body production?

A. Yes, sir.

Q. Do you recall what those prices were that you quoted in the early part of 1928, and if you have any memorandum taken from your records, you may consult that memorandum with a view to refreshing your recollection.

[fol. 205] A. This is the standard equipment you are talking of?

Q. I am speaking now of standard equipment.

A. In 1928, Mr. Haskell and myself called at Mr. Fisher's office, and Mr. Fisher asked us to submit a proposition of Triplex Safety Glass for all the Cadillac and La Salle cars. I later submitted a schedule of prices dependent on the quantities, 1000 feet per day, and so on, up through 10,000 feet per day. Those prices ran from $2.66 down as low as $2.20, but it was based on very big volumes, 10,000 feet and over, when I am mentioning the lower price. We had been selling Cadillac and La Salle—or rather the Fisher body—a great deal of glass during 1927, for $4.80 a foot.

Q. Did you obtain any orders from the Fisher Body Company at the prices you mentioned you quoted in the early part of 1928?

A. We secured the Fleetwood production business at $2.55 a foot.

Q. Did you secure any of the business of the Fisher Body Corporation?

A. No, not on standard equipment.

Q. Did Mr. Fisher give you any reason for your failure to secure that business?

A. Yes, sir.

Q. Will you state what the reason was, please?

A. Mr. Fisher told me that he could buy duplate for a great deal less than our quotations on Triplex.

Q. Did he state any specific amount of the Duplate prices?

A. Yes, sir.

Q. What was it?

A. $1.75 a foot.

Q. That was in 1928?

A. Yes, sir.

Q. Now, you also, I understand, had some contact with the Buick?

[fol. 206] A. Yes, sir.

Q. And did you quote the Buick Corporation prices?

A. Yes; $2.81 a foot.

Q. And what time was that?

A. In 1928.

Q. What part of 1928?

A. May. It ran up as far as July before my solicitations were ended.

Q. And do you recall the name of the gentleman you were in contact with in the Buick Company?

A. Yes; I worked with Mr. J. C. Shaw and Mr. Kingston Forbes, the body engineer, and several others in the company.

Q. Who saw Mr. Shaw?

A. The purchasing agent.

Q. Did you obtain any business from the Buick Company at the price you quoted them?

A. No, sir; I was referred right back to Mr. W. A. Fisher.

Q. That is, the Mr. Fisher connected with the Fisher Body Corporation?

A. President of the Fisher Body Corporation.

Q. Did you take up with him the question of selling standard equipment for the Buick car?

A. I did; but this particular item that I am talking about here was optional equipment?

Q. This was optional equipment?

A. Yes, sir. Buick put out a letter to all their dealers, offering Buick cars equipped with non-shatterable glass, at an excess cost.

Q. Did you secure any of this optional equipment from Buick?

A. No, sir; Duplate got it.

Q. Did Mr. Fisher give you any reason why it went to Duplate instead of Triplex?

[fol. 207] A. He said he bought it at the same price, I imagine, they had with the Cadillac and the LaSalle production.

Mr. Christy: I merely wish to give notice to my opponent that my objection to testimony of this character still stands.

He can call Mr. Fisher here, I suppose. It is agreed that this objection may be continued without further repetition.

Q. Were you in contact with the executives and officers of the Hudson Company?

A. Yes, sir.

Q. Do you recall whether you succeeded in making any sales during 1927 to that company?

A. In 1927, Hudson put out a poster, offering Triplex safety glass through service, and as optional equipment, and through our distributors. That was in 1927, and ran over into 1928.

Q. Just before 1928, did you succeed in making any sales of this optional equipment in 1927?

A. None of any consequence. It went through our distributors.

Q. What price did you quote on this?

A. $4.80 a foot.

Q. What happened in 1928?

A. In September, 1928, Mr. Ostdyke, purchasing agent, and Mr. Munger, assistant purchasing agent, requested a price from me on 20,000 non-shatterable windshields. Our quotation was $2.88 a foot.

Q. For what quality?

A. Plate—Triplex plate.

Q. Try to distinguished between qualities when you give prices.

A. Any price I have named so far has been on nothing but Triplex standard plate. Mr. Ostdyke told me he had given this order to the Duplate Corporation, at approximately one dollar a foot less than our price.

[fol. 208] Q. Now, you were in contact, you say, also with the Chrysler and the Dodge. Did you quote either or both of those corporations during the year 1927?

A. Yes, sir.

Q. What was the price that you were quoting Chrysler?

A. $4.80 a foot.

Q. Did you obtain any business at that rate?

A. Yes, sir; we secured a number of orders.

Q. It has been testified to here that the standard equipment of Chrysler obtained in December, 1927, for their No. 50 Special—apparently that was in the middle of 1927

rather than December. Did you obtain that? Do you recall that instance?

A. 50 Special Chrysler?

Q. It was stated that the order was for the tonneau windshield and the front windshield. I was just asking if you were the one who obtained that order?

A. It seems to me that order passed through our office and possibly I secured it; but I have no definite memorandum with me here on that.

Q. With whom were you in contact in the Chrysler Company?

A. I called on every official, I believe, of the Chrysler Corporation, several of the members of their purchasing department, including the director of purchases, several of their body engineers and chief engineers.

Q. Who was the director of purchases?

A. Col. A. C. Downey.

Q. Can you state what you were quoting Chrysler at, in the early part of 1928—what prices you were quoting?

A. We submitted a proposition to Chrysler on December 16, 1927, around December 16, 1927, on the same basis as I mentioned previously here to the Fisher Body Corporation, one of these schedules based on quantities per day, [fol. 209] 1000 feet on up to 10,000 feet per day. Those prices ranged—there were some figures in there of $2.81 a foot, clear down through $2.66, and on to $2.20.

Q. Did you obtain any business at those quotations from Col. Downey, of the Chrysler Corporation?

A. No.

Q. Did he give you any reason why you failed to obtain that business?

A. At that time they did not place any business. I am speaking of December, 1927.

Q. Well, now, going down to the fall of 1928, were you still quoting the same prices, ranging from $2.81 to $2.20?

A. Yes, sir.

Q. To Col. Downey?

A. Yes, to Col. Downey.

Q. Did you obtain any business at that time?

A. No, sir.

Q. Did Col. Downey give you any reason why?

A. Col. Downey told me that they had decided to purchase Duplate at approximately one dollar per foot less than our quotations.

Q. After 1928, do you recall whether you made any other quotations to Col. Downey?

A. I continued to quote the Chrysler Corporation.

Q. At what time?

A. At this same schedule, for a considerable time.

Q. Did you ever get under that schedule?

A. Here recently we did.

Q. Did you ever get under that schedule in 1929?

A. Yes, sir.

Q. Do you remember what the price was that you got down to in 1929?

A. In the fall of 1929, we submitted a price of $1.90 a foot.

[fol. 210] Q. Did you obtain any orders at that price from Col. Downey or the Chrysler Company?

A. No, sir.

Q. Did he give you any reason for your failure to obtain the business at that time?

A. Col. Downey said that the arrangement they had with Duplate was on a lower basis than what I was quoting for Triplex.

Q. Now, with respect to the J. N. Smith Company?

A. Joseph N. Smith Windshield Manufacturers; they are now part of the Ainsworth Manufacturing Company.

Q. Were they a part of the Ainsworth Manufacturing Company in the year 1928?

A. No, sir.

Q. With whom in that concern, Joseph N. Smith, were you in contact with, in 1928?

A. We worked with Mr. Williams, the sales manager, Mr. Brown, the production manager, Mr. Selden, president and general manager.

Q. Do you recall what you were quoting the Joseph N. Smith Company in 1928?

A. In November, 1928, we quoted Joseph N. Smith Company for the Studebaker windshields, $2.05 a foot.

Q. Did you obtain that business at that figure?

A. No, sir; Duplate secured that business.

Q. How did you find out that Duplate secured the business?

A. Because Mr. Brown took me out and showed me some of the Duplate, and Mr. Selden told me.

Q. Did he give you any reason at that time why he gave the business to Duplate rather than you?

A. Mr. Selden told me that they had to use Duplate on these Studebaker windshield orders, by specification from the Studebaker Corporation.

[fol. 211] Q. That was the only reason that they used it in this case?

A. I would think so, as far as Joseph N. Smith.

Q. The only reason he gave to you, I mean.

A. Yes, sir; that is the only reason he gave to me.

Q. At that time, were you in touch with the Studebaker executives?

A. Yes, sir.

Q. And what executives were you in touch with, of Studebaker, at that time?

A. The president, Mr. Erskine, Mr. Vance, vice-president, Mr. Bockus, vice-president, Mr. Hoffman, vice-president and sales manager, Mr. Peterson, purchasing agent. Those were the main officials in Studebaker that I talked Triplex safety glass with.

Q. Did they give you any reason why they directed the business to go to Duplate rather than you?

A. Yes, sir.

Q. What was it?

A. Price.

Q. Price again?

A. Yes, sir.

Q. Now, going to the Packard, with whom were you in touch in the Packard Company?

A. Mr. J. H. Marks, purchasing agent; Mr. Hittle, assistant purchasing agent; Mr. Morehouse, chief engineer; Mr. E. F. Roberts, vice-president and production manager; Mr. Knapp, body engineer. Those are the main officials.

Q. Were you giving those officials of the Packard Company quotations in the early part of 1928?

A. Yes, sir.

Q. Did you continue those quotations throughout the year 1928?

A. Yes, sir.

Q. Do you remember what those quotations were, to the Packard Company?

[fol. 212] A. All of our quotations were uniform. Whenever we submitted a production price schedule to the automobile manufacturers, or the body builders, they were all the same as I have listed here as Fisher Body and Chrysler Corporation.

Q. Did you obtain any business from the Packard Company on those prices?

A. No, sir.

Q. Did the officials whom you have mentioned give you any reason why you didn't obtain that business?

A. The treasurer of the Packard Company spoke to me about the fact that Mr. McCauley, president of the Packard Company, was a brother-in-law of one of the officials of the Libby-Owens.

Q. That is all you know about the question of your failure to obtain the business of the Packard Company?

A. Yes, sir.

Q. Now, how about the Motor Products Company? Did you have any contacts with them in 1928?

A. Motor Products Corporation we visited frequently.

Q. In 1928?

A. Yes, sir. We supplied Motor Products several orders back in 1927, some in 1928, at $4.80 a foot.

Q. That $4.80 a square foot, of course, was the optional equipment?

A. I believe so.

Q. Did you quote them on these large quantities ranging from 1000 square feet a day to 10,000 square feet a day?

A. My recollection—I have no note here definitely—is that we submitted one of those production price schedules to Motor Products in 1928.

Q. Who does Motor Products manufacture for—what car?

[fol. 213] A. Motor Products were making windshields in 1928 for Packard, Ford—several of the car manufacturers; I believe Chrysler.

Q. Was there any talk between you and the executives of that company with respect to price conditions?

A. Frequent talks.

Q. What was the substance of your talk?

A. That we were about $1 a foot higher than Duplate.

Q. Coming now to the Ainsworth: will you please state the full name of that company?

A. Ainsworth Manufacturing Company.

Q. Is that a body builder?

A. Windshield manufacturer.

Q. With whom were you in touch in that company?

A. I had some visits with Mr. Ainsworth. Most of our work was with Mr. Tompkins, purchasing agent.

Q. Were you quoting the Ainsworth Manufacturing Company prices in 1928, and if so, state what those prices were.

A. I have no record here of quoting Ainsworth in 1928.

Q. And you have no recollection of what the prices were that you quoted them? Is that it?

A. I do not recall quoting Ainsworth Manufacturing Company on any standard equipment in 1928.

Q. Did you quote them in 1929?

A. Yes, sir.

Q. What prices were quoted at that time?

A. October, 1929, we quoted $1.90 per foot.

Q. For what car was that?

A. Marmon.

Q. Did you obtain the order at that quotation?

A. We filled some for Ainsworth Manufacturing in 1929. I have no record here definitely at what price we supplied those orders. On this $1.90 quotation in October, 1929, [fol. 214], that you have just asked me about, Mr. Tompkins placed that business with Duplate.

Q. Did he give you any reason why he placed it with Duplate?

A. Mr. Tompkins told be he bought those windshields for $1.75 a foot.

Q. What is the Le Barron Company, and give the correct name for it, if you have it?

A. Le Barron Body Company, I think. I am sorry I am not sure on the firm title.

Q. For what automobile concern does the Le Barron manufacture?

A. Le Barron are part of the Briggs Manufacturing Company, and they make custom bodies for Stutz.

Q. Did you quote the Le Barron Company prices during the year 1928?

A. Yes, sir.

Q. What prices did you quote?

A. We supplied Triplex for Le Barron during the latter part of 1928 and the first part of 1929.

Q. At what prices?

A. I am not perfectly sure; I think it was $2.55 a foot. I haven't the memorandum here. I have a memorandum of the quotations we later made them on June 4, 1929, which was $2.25 a foot. I did not secure that business at $2.25 a foot; Duplate secured it.

Q. With whom in the Le Barron Company were you in touch in making those quotations?

A. Mr. Manning, production manager, and Mr. Gross purchasing agent, and Mr. Taylor, I believe, was chief inspector; all three were familiar with my prices.

Q. Did they give you any reason why you didn't obtain the business at that price?

A. Mr. Manning told me they bought Duplate on that order for $1.90 per foot.

[fol. 215] Cross-examination.

By Mr. Christy:

Q. May I see the notes from which you have been testifying?

A. Yes, sir.

Q. Do you always believe what a buyer tells you as to quotations made by your competitors?

A. No, sir.

Q. Now, as I understand the situation, from your direct testimony, along about the end of 1927, you were quoting $4.80 per square foot on what is called optional equipment. Is that right?

A. Yes, sir.

Q. And in how large quantities did you sell your product at that price?

A. We secured some orders in lots of 100 cars—100 bodies.

Q. You would say—and I am guessing at this—the orders would usually run a thousand square feet or less?

A. Ordinarily I would say possibly smaller than a thousand square feet at a time.

Q. Around this $4.80 price, was there any variation for size of the individual pieces?

A. No, sir.

Q. That was flat rate, $4.80 a square foot?

A. Yes, sir.

Q. Then about the same time you commenced to quote a standard equipment, as I understand; that is, toward the end of 1927?

A. Yes, sir.

Q. And there you quoted prices ranging from $2.81 a square foot down to about $2.20 per square foot, depending upon quantity of the order. Is that right?

A. That is correct.

Q. Was there any differential made for size in there?

[fol. 216] A. Yes, sir.

Q. Well, take the $2.66 range. That is one which you gave. What differential would you have for sizes there?

A. The door light and side light would be cheaper.

Q. Cheaper than the windshields?

A. Cheaper than the windshield sizes.

Q. About how would those sizes run?

A. In area?

Q. Yes.

A. The windshields would run ordinarily around a little better than four square feet, average; the side lights three feet, and below.

Q. Did these quotations include edge work, or was that extra?

A. I have no note in front of me here that I can tell you certainly on that. My recollection was that we charged extra and quoted extra for edge work.

Q. If you did, that doesn't appear on your notes here. Is that right?

A. I don't have a definite record on here, but I think I can quite safely tell you that edge work was always in addition to any of these schedules I have mentioned.

Q. Did you allow any discounts on these prices?

A. No, sir; nor rebates.

Q. Referring to the Chrysler Company, did you connect that with one of these bodies or windshield concerns, or were all your dealings direct with Chrysler?

A. We supplied some material for Chrysler bodies that were made by custom body builders.

Q. And was that Fleetwood or Fisher, or any of these people you have mentioned?

A. Well, Le Barron made some bodies for Chrysler. I don't recall our supplying anything to Fisher for Chrysler.

[fol. 217] Q. I do not remember your testimony clearly. Did you say that you took any orders for standard equipment from Chrysler in 1928?

A. Not what I would classify standard equipment.

Q. Did you take any orders from them at this $2.81—$2.20 rate?

A. No, sir.

Q. That is, whatever you sold Chrysler in 1928, was sold at your $4.80 rate, was it?

A. That is my recollection.

Q. Did I understand you to say that it was represented to you that Studebaker was buying laminated glass from Duplate in the fall of 1928, at $1.90, or less, per square foot?

A. Mr. Chanter, the president of Pierce Arrow, told me on November 2, 1928, that Duplate's price to them—Pierce Arrow and Studebaker—would be $1.90 a foot.

Q. I forgot to ask you whether, in quoting prices, you gave any differential for quality of the plate glass, as between what is called silvering quality and what is called glazing quality?

A. On everything I have testified to here, our quotations were all standard plate glass.

Q. That is, glazing quality?

A. What we call our Triplex standard quality.

Q. Do you ever get a requisition for glass called mirror glass, or silvering quality plate?

A. Yes, sir; that is what we were called upon to furnish Lincoln Motor Company.

Q. Did you make any differential for that?

A. We generally asked more for the silvering quality.

Q. You wish to be understood that some of these buyers told you in so many words that Duplate's price was one dollar a square foot less than yours?

[fol. 218] A. Yes, sir. I answered your first question briefly, and I would be a poor salesman if I believed everything that was told me, but I have yet to find W. A. Fisher, Charles Ostdyke and Colonel Downey, when they told me a competitor's price, but what they were telling me the absolute truth, and that is over a period of quite a few years.

Q. I don't charge that any of these particular officials did, although I can make a reservation that you may have misunderstood them, but you do not mean to testify that all of these representations of which you have spoken in your direct examination were implicitly believed by you?

A. I believed every one that I have testified to here, and have good reason to believe them.

Q. Did any of these people make any representations to you as to Libby-Owens' prices?

A. None of the people I have testified to here. I can't recall any representations to me of what Libby-Owens prices were.

Q. Then am I to infer from your testimony that in none of these examples of alleged price cutting, which you have mentioned, did Libby-Owens figure as a competitor?

A. They do not, with the exception of Packard.

Redirect examination.

By Mr. O'Shea:

Q. Mr. Hunt, in your cross-examination you said that an executive connected with the Pierce Arrow stated what Studebaker was paying for glass. Was there some connection between Studebaker and Pierce Arrow at the time of that statement, do you know?

A. Yes, sir. Pierce Arrow is owned by the Studebaker Corporation, and the reason I answered it, as information Mr. Chanter, of Pierce Arrow, had given me, was because [fol. 219] of the date I understood Mr. Christy asked this of me.

Q. What date was that?

A. I believe Mr. Christy mentioned November, 1928.

Q. Was that the date you did get that information from Mr. Chanter?

A. Yes, sir.

Q. Was there some connection at that date between Studebaker and Pierce Arrow?

A. Yes, sir.

Q. Do you know what the connection was, of your own knowledge? If not, don't answer it.

A. I don't quite understand you.

Q. Do you know what the connection between Studebaker and Pierce Arrow was of that date?

A. Studebaker owned Pierce-Arrow.

Q. Was Mr. Chanter ever an employee or official of the Studebaker Company?

A. Mr. Chanter, when I first knew him, about fourteen years ago, was assistant to Mr. Wollering. He later became assistant to Mr. Erskine, president of the Studebaker—all of this was in the employ of the Studebaker Corporation—and then director of purchases, and I believe it was in 1928 that he went to Buffalo to run the Pierce Arrow plant.

Q. For the Studebaker?
A. For the Studebaker Corporation.

H. S. WHERRETT, a witness produced on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. Mr. Wherrett, what office do you hold in the Duplate Corporation?
[fol. 220] A. President.
Q. How long have you been president of that company?
A. Since the organization.
Q. As I understand it, you are also president of the Pittsburgh Plate Glass Company?
A. That is correct.
Q. And have been president of that since the death of Colonel Brown?
A. Captain Brown, yes; a little over three years.
Q. You have been president of the Pittsburgh Plate Glass Company for a little over three years?
A. That is right.

* * * * * * *

Tuesday, May 19, 1931, at 10 o'clock A. M.

* * * * * * *

Q. Was there any lease or agreement between Pittsburgh Plate Glass Company and Duplate Corporation, with respect to either the Duplate Building or the land on which the building was built?
A. There was a lease for land rental.
Q. And that is at the general offices?
A. I think it is.
Q. And you have sent for that
A. Yes, sir.
Q. It has been testified here, Mr. McHenry, that Duplate Corporation received a preferential price from Pittsburgh Plate Glass Company on its plate glass. Will these requisition slips and shipping slips, which you are going to produce, show what that preferential price was?

A. They will not.

Q. Would the bills from Pittsburgh Plate Glass Company to Duplate Corporation show what the price was?

A. They would.

* * * * * * *

[fol. 221] Q. Mr. McHenry, you have stated that this so-called preferential price, or discount for pyralin from du Pont Viscoloid to Duplate Corporation, started in June, 1929. Do you know of any reason why that was started in June and didn't apply to the previous months?

A. We received notice in the Comptroller's office, on July 24, that du Pont Viscoloid was giving new prices, retroactive to June 1, 1929. At that time the Pittsburgh Plate Glass Company also gave a 10 per cent. discount on all purchases of glass from Pittsburgh Plate Glass Company, of 10 per cent. Prior to that time, Duplate had been paying Pittsburgh Plate Glass Company at the regular selling price.

Q. Do you mean by that, market?

A. Market price. And on June 1st the Duplate Corporation received the lower price for pyralin; also glass.

* * * * * * *

SYDNEY W. CAULFIELD, a witness produced on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. Mr. Caulfield, you are connected with the Triplex Safety Glass Company of North America?

A. Yes, sir.

Q. In what capacity?

A. Vice-president and treasurer.

Q. How long have you been vice-president and treasurer?

A. I have been treasurer since I first went with the company in 1927; I was made vice-president this year.

[fol. 222] Q. When in 1927 did you first go with the company?

A. November.

Q. As treasurer, will you state briefly what your duties are?

A. This being a relatively small company, the duties of a treasurer are slightly more comprehensive than they might be in a large company. I had charge of all the accounting, installed the cost system, and served as a contact with the Ford Motor Company, because of our cost-plus contract, and generally got into all questions of policy of the company.

Q. Did you have any connection with the price policy adopted by the Triplex Safety Glass Company?

A. Yes, sir.

Q. Was it your duty to follow up and figure the prices that would be charged the customer?

A. It was one of my first duties to estimate what we could sell glass for in large quantities, on a large production basis.

Q. Was there a Mr. Calhoun connected with your company when you first went there?

A. Yes, sir.

Q. What capacity was he in?

A. He was salesman.

Q. Among your other duties did you have any connection with him as a salesman?

A. Yes, sir, with Mr. Calhoun, Mr. Haskell and Mr. Hunt. All three functioned on sales.

Q. And established the sales policy?

A. Yes, sir.

Q. And you attended those meetings?

A. Yes, sir.

Q. And are familiar with the sales policy of Triplex Safety Glass Company of North America since you made your connection with that company?

A. Yes, sir.

[fol. 223] Q. Are you familiar with Schedules "J" which have been introduced in this case as Exhibit 8, for identification?

A. I have seen it and studied it.

Q. Will you please state what the experience in your company shows to be a normal breakage in raw stock?

A. We would consider half of one per cent. high for breakage in raw stock.

Q. And what do you define as coming under the term of "Breakage" in raw stock, and how such breakage would occur?

A. I think I am using the term in its dictionary sense—what is actually broken; that is, from a rack of glass a man might pick one up and drop it and it would break.

Q. And it is breakage occasioned by handling such as that that you consider normal breakage?

A. Yes, sir.

Q. It has been testified to here that there are possibilities of extraordinary accidents happening, such as a man running an electric truck into a stack of glass. Can you state whether or not from your experience such extraordinary accidents happen very frequently?

A. Not frequently. Of course, we don't happen to have electric trucks.

Q. How do you handle your business?

A. We transport most of the glass on small hand trucks.

Q. From point to point in your factory?

A. Yes, sir. Accidents of that nature are extremely rare. I think the largest one I know of was a truck that had fifty lights on, that was upset.

Q. Were all of them destroyed?

A. I imagine they would be.

Q. Do you think it possible that if an electric truck ran into a rack containing a rack of glass, that it would completely destroy 3500 lights of glass?

[fol. 224] A. 3500 lights is almost a carload. I can't conceive of such an accident in our place.

Q. Do you have in your factory an operation of cutting glass—raw glass?

A. Yes, sir.

Q. Will you explain what that operation consists of?

A. Glass is purchased in rectangles or standard sizes. When a customer orders laminated glass, the raw glass is cut to the required shape from the next largest rectangle from which such finished glass can be cut.

Q. Can you give an example of that operation of cutting glass in sizes, specifying the bracket which you purchased?

A. Yes. A frequent purchase of raw glass would be, by way of example, 14 by 44 inches, which is a size frequently used for windshields. The contour of the shield—or that glass would be cut to follow the contour of the actual fin-

ished product, but the customer would be charged as though the size were 14 by 44, there being theoretically no waste.

Q. That is your system of purchasing raw glass and selling laminated glass?

A. Yes, sir. I say, there would be theoretically no waste. I mean, from the actual cutting of the glass. Occasionally, you will get a little breakage in that operation. Our experience runs about one-third of one per cent. Our operators that break three in a thousand are either corrected quickly or let go.

Q. Can you explain what there is in your operation that causes a cutting breakage or loss?

A. I said theoretically there can be no cutting wastage, because we charge the customer with the size of the rectangle from which the glass can be cut. In actual practice, if, being a long way from our source of supply, we didn't have the right size, we might have to use an oversize, but [fol. 225] our policy has been to hold up shipments as much as possible until we could get the right size glass. We did, in the early days, when we were buying foreign glass, occasionally take cutting losses, where we didn't have the right size in stock.

Q. That is to say, in some instances, you being removed some distance from your source of supply, were obliged to cut more from a given glass bracket than you ordinarily would if you had that bracket size in stock. Is that correct?

A. In the beginning, when we purchased from Czechoslovakia and England, we had to more or less estimate what sizes we would need; possibly find ourselves loaded up with sizes that were not moving rapidly, and would sometimes cut those to a loss, although we are still carrying some of that three-year-old glass rather than take the loss. It moves slowly in the right size.

Q. When you obtained the American source of glass, was there much of that character of loss?

A. Very little, after we got deliveries.

Q. Now, a second source of cutting breakage is occasionally, is it not, in this cutting down of a particular bracket to the next lowest size? In other words, are there sometimes breakages that would be caused by that cutting, or by cutting the contour?

A. No, sir; there is no wastage in cutting the contour, because the customer is charged for the size of the glass from which the contour can be cut.

Q. I understand that, Mr. Caulfield, but it has been testified to here, as I understand it, by Mr. Datz, that a loss which he experienced in his factory was occasioned from cutting to a particular contour or cutting from these bracket sizes. In other words, in the cutting operation the glass was broken. Have you had any experience in that?

[fol. 226] A. We just mentioned that we might get a third of one per cent. breakage in breaking glass, but that is not——

Q. Does that third of one per cent. include all of this cutting breakage?

A. Yes, sir; it includes cutting breakage.

Q. What else does it include besides cutting breakage?

A. That is all. We presumably have no cutting waste. I think it was stated that occasionally when they made a light 16 by 46, they had to use an 18 by 48 bracket. That might be true in very rare instances, where 16 by 46 is the size of the finished light and needs a little finishing, so that they must use a larger size glass. I don't know what their practice is. We charge for the larger size glass and have that arrangement with our customers, so a finished light that might happen to come exactly 16 inches by 46 inches, and require a quarter of an inch extra for finishing, we would charge an 18 by 48, and we have done so with our customers, pointing out to them that if they decrease the size an eighth of an inch and make it 15⅞, say, by 45⅞, it will then come out of a 16 by 46 glass, and I think that is the custom in the industry. I am not sure of that point.

Q. Passing now to the question of pyralin. From whom did you purchase your pyralin?

A. We have four sources of domestic supply and two sources of foreign supply.

Q. Among your domestic supplies, do you purchase from du Pont Viscoloid Company?

A. We do.

Q. Now, please describe briefly the manner in which you purchase pyralin?

A. Pyralin originally was made in only one size, 20 inches by 50 inches, which was a stock sheet, used largely for making open curtains, side curtains, on open cars. Orig-

[fol. 227] inally that size sheet was purchased by us and cut to the required dimensions of the glass we were fabricating. Naturally, it was advantageous to have other sizes made, so that they would be cut to less wastage, and gradu-

ally, over the period of two or three years, there has been added possibly some eight or ten other sizes, namely, 20 by 36, 36 by 60, those being the sizes which would cut most economically for the general run of automobile windows; and some have been purchased cut to size.

Q. What is meant by "cut to size"?

A. We have the pyralin manufacturer blank out generally with a die the pyralin to the exact size that we are going to use. That is done when you have a large order of one particular size, such as Ford windshields or Ford body lights.

Q. So that when you order pyralin from your source of supply, including the du Pont Viscoloid Company, you specify either the standard size sheets manufactured by those pyralin manufacturers, or a specified size?

A. Yes, sir.

Q. Are there any other specifications in your orders for pyralin?

A. Of course, over the period of time we have specified just what the ingredients should be and the amount of camphor content, for example, the amount of haze that would be tolerated—should I explain that there is a little haze in pyralin—the amount of lint that might be mixed in with the pyralin—a little is not too objectionable; the freedom from dust, and any number of specifications regarding the quality.

Q. So that your orders of pyralin, then, would be according to these specifications that you have mentioned, and in addition thereto the size of the sheets which would either be a standard size manufactured by the pyralin manufac- [fol. 228] turer or a special size which you wish?

A. Yes, sir.

Q. In your operations, do you, on receipt of pyralin from your source of supply, make an examination, for the purpose of determining whether the pyralin is up to specification and according to size?

A. Yes, sir. That is, it may not be immediately upon receipt—before its use. It may be stored for a week or two before examination, but it is all inspected.

Q. And have you had any cases where, upon examination of the pyralin received by you from your source of supply,

it was discovered that the pyralin did not come up to specification?

A. Yes; plenty.

Q. And what do you do in instances where you have determined that the pyralin shipped to you by the pyralin manufacturer does not come up to specification?

A. Ship it back.

Q. Have you ever had a case when credits were not granted?

A. On anything returned?

Q. Yes; because of failure to come up to specification?

A. No. We have had cases where we could use it for other production, and have received an adjustment of price therefor; either we returned the pyralin for full credit, which credit has always been granted, or else we take a sheet—They send their inspectors, and say, "Well, that sheet is 20 by 50, and the defect is up at one end. Couldn't you cut it down to the 20 by 36, and pay us at that rate"? That has been done.

Q. Have you ever had occasion to find pyralin which has been cut to size, but defective as to specifications, and unsuitable for use in laminated glass?

A. Yes, we have.

[fol. 229] Q. And in instances of that kind, what do you do with the pyralin?

A. Return it.

Q. Have you received price adjustments from the du Pont Viscoloid Company for pyralin that did not come up to size, and which your examination determined was unsuitable for use in laminated glass?

A. We return it for full credit. We bill them immediately upon return.

Q. I say, have you done that with pyralin purchased from du Pont Viscoloid Company?

A. du Pont and all the others.

Q. In this condition that you speak of, of cutting down to the next even size of a particular standard bracket size, you stated there was no theoretical loss. Do you distinguish between theoretical and practical loss?

A. I mean, there was no loss, unless we used the wrong size.

Q. You mean, unless you used the wrong size bracket?

A. Yes.

Q. But starting with the proper size bracket for a particular order, and cutting down to the size of that order, since you charged the customer for the bracket size, there is no practical loss—either practical or theoretical?

A. That is correct.

Q. You were with the Triplex Company in 1927?

A. The latter part.

Q. The latter part of 1927?

A. Yes, sir.

Q. Where was its factory located at that time?

A. Hoboken, New Jersey.

Q. And what was its production capacity at that time?

A. At the time I joined the company it would be approximately 1200 lights, a twenty-four-hour day. They [fol. 230] didn't work twenty-four hours at all times, but that was the capacity. The pressing capacity was the controlling factor. They had twelve presses with a cycle of four to an hour per press. That would be ninety-six per press per day for twenty-four hours. So the answer of 1200 is approximately right; it is 12 times 96.

Q. It has been testified to here you increased your capacity in the early part of 1928?

A. Yes, sir.

Q. That is the fact, is it?

A. Yes, sir.

Q. That increase was both as to floor space and as to production capacity determined in the presses?

A. Yes, sir; we ordered 100 additional presses and decreased the pressing time slightly, so that we estimated a capacity of from 10,000 to 12,000 lights per day in the new factory.

Q. How much is that, stated in square feet?

A. It would be that multiplied by three and a small fraction—say 36,000. The average window light is three feet; the average windshield is four.

Q. And that 36,000 square feet per day is on a three-shift basis, or 24-hour production?

A. Yes, sir.

Q. Was there any further increase in your capacity from the early part of 1928 down to June, 1930?

A. Yes, sir. We have changed the processes slightly, and decreased the pressing time; also, put in other apparatus that has given us a larger production capacity. I

would say now it is about fourteen or fifteen thousand lights per day.

Q. Was that change——

A. That was made gradually. It was not at any one particular time.

(Recess until 2 o'clock P. M.)

[fol. 231] Afternoon Session

SYDNEY W. CAULFIELD resumes the stand.

Direct examination (continued).

By Mr. O'Shea:

Q. About what was the capacity, let us say, during the year 1929?

A. 1929, I would say our production capacity averaged 12,000 lights a day, which would be, if they were all windshields, 48,000 feet; or 36,000, if they were all door lights. So that the capacity was somewhere between 36,000 and 48,000 square feet per day.

Q. Still considering a day as twenty-four hours?

A. Yes. I am giving total capacity.

Q. Now state the capacity of your plant during the first five months of 1930?

A. I should say approximately the same as 1929.

Q. That is to say, from 36,000 to 48,000 square feet per day of twenty-four hours?

A. Depending upon the size.

Q. Depending upon the size of the lights that were being run through?

A. The average size of the lights.

Q. Now, please state what was your total production of all classes of goods in the year 1927?

A. May I refer to notes?

Q. I assume the notes you are about to refer to are figures taken from the books of the Triplex Safety Glass Company of North America?

A. Yes. In 1927, 49,669 square feet; that is plate and sheet. The records don't readily show how much was each. I would have to go back and make a detailed check of that.

Q. Now, in the year 1928, please tell me what the total production of plate was in that year?

[fol. 232] A. I have the production of that year subdivided. First, is plate glass, 161,564 square feet; that is laminated glass. Sheet, exclusive of the Ford contract, was 51,515. The shipments under the Ford contract were 1,924,781 square feet.

Q. That makes a total footage of about——

A. 2,137,860.

Q. Now, let us have similar figures for the year 1929.

A. Similar figures for the year 1929: 195,788 square feet plate; 181,041 square feet of laminated sheet, exclusive of the Ford contract requirements. Ford, 6,236,524 square feet. That adds up to 6,613,353 square feet.

Q. Have you your production figures for 1930, for the first five months?

A. No; I haven't got them for the first five months. I can get those by wiring my assistant.

Q. During the year 1928, at what prices were you selling your plate glass and sheet glass, respectively?

A. That would depend on whether it was optional or standard equipment.

Q. Well, go back to 1927, and tell us what your records shows you were selling plate glass and sheet glass, respectively?

A. 1927, showed $4.80 base price on plate, and $3.60 on laminated sheet. I use the term "$4.80," meaning, as I stated, a base price. There were occasional little additions for extras, such as cutting notches or drilling holes, or boxing charges, I think; but that is probably understood that occasionally there would be surcharges for extras.

Q. Were all those sales in the year 1927 made under the term that we have been using here as optional equipment?

A. I think practically all were, with one exception. There was a Chrysler order, which has been referred to, [fol. 233] which was taken at $4.50, and that was for all of a certain model sport phaeton that they brought out.

Q. Was that the order that was for the front and tonneau windshields, and was for fifty special bodies?

A. Yes, sir.

Q. So that outside of that order, all the rest of the sales were made——

A. Optional equipment basis.

Q. And at these prices you have mentioned, $4.80 or $3.60?

A. With, of course, the possible exception we might have given a piece away as a sample.

Q. I am speaking of sales. I don't consider a piece given away a sale.

A. There might have been a sale or two to an individual at half price, or something like that.

Q. At the end of 1927, was there a conference among your executives to consider another price policy than had theretofore prevailed?

A. Yes, sir. The fact that we had obtained the Ford contract in October, 1927, led us to believe that the time was ripe when other manufacturers could be persuaded to take laminated glass on as standard equipment, and as cost accountant I was requested to figure out what might be a logical price to establish for manufacturers who would take on laminated glass as standard, either in one or more models.

Q. And did you submit figures at that conference?

A. I did.

Q. Did those figures have to do solely with the prospective business on standard equipment?

A. Yes, sir.

Q. For optional equipment, what was the future policy to be?

A. They remained the same at that time.

Q. Have you your working papers that you submitted to that conference?

[fol. 234] A. There were two conferences, Mr. O'Shea, and I have memorandum here showing how three tables, three schedules of established prices, were made up. Shall I submit them or explain them?

Q. And submitted at that conference?

A. At a series of conferences.

Q. Will you produce those working sheets?

A. (Witness does so.)

Q. Does this go with it? (Indicating a separate paper.)

A. Yes, that goes with it.

Mr. O'Shea: Counsel for plaintiff offers in evidence the documents submitted by Mr. Caulfield, consisting of three memoranda and two work sheets which were submitted to the conference, and ask that they be marked Plaintiff's Master's Exhibit No. 19.

Mr. Christy: Objected to as immaterial, and apparently needlessly encumbering the record. If my opponent thinks it material to develop the prices charged by plaintiff at the time stated, I suppose he is at liberty to do so; but I cannot see that the methods by which the price or prices were reached have anything to do with this case.

The Master: We will admit it for the present and hear the testimony.

Q. Mr. Caulfield, will you please explain the various prices that appear on here, stating which of them went into effect at a particular time, how long it remained in effect, and when the second sheet or tabulation went into effect, and how long it remained in effect?

A. The first sheet is divided into three groups; the first group of prices was based on the then present prices of glass and celluloid. Glass at that time had to be purchased [fol. 235] from foreign sources, and was rather expensive, more expensive than the domestic. Celluloid was at a fixed price at that time; that is, there was a definite price. The first table was gotten up and was used first as a basis of a quotation to Fisher Body on December 8, 1927. The prices are divided into four qualities: that is, windshields of plate, other lights of plate, windshields of sheet, other lights of sheet. Each of those was subdivided into four groups, dependent on quantity; one covering orders up to a thousand feet a day, the second up to two thousand, the third up to five thousand, and the fourth up to ten thousand. There are two other lines shown on this sheet for a special windshield price, which was a little bit higher. That was to be the basis of a quotation to Hudson on a quantity at that time. The second group of prices which, if I may, I will refer to as group "B" hereafter, was gotten out three days later. The reason for a change within three days was that Mr. Haskell persuaded the celluloid suppliers to reduce the price on a sheet of celluloid from $1.50 to $1.15, effective at once, so that this table "B" became the revised established price as of that date. In that same period, at about that same time, Mr. Haskell, in an attempt to reduce the price of raw material, not only obtained the reduction from the celluloid company, but obtained a statement that within three to six months domestic glass would be available, and the prices at which it

would be available were quoted. Immediately at that time we figured out what the price would be, giving effect to that lower glass price when, as and if it were obtained, and these two tables "B" and "C" were quoted simultaneously to Fisher and others, with the statement that our price would be "B," until the domestic glass of satisfactory quantity and quality was obtained, at which time "C" would become effective. Tables "B" and "C" were used practically throughout '28 or up towards the end of '28.

[fol. 236] Q. Now, will you just state on the record what the prices were on the table which you have referred to as table "B," and what the prices were that you have referred to as table "C"?

A. "B":	Up to 1,000 sq. ft. per day	Up to 2,000 sq. ft. per day	Up to 5,000 sq. ft. per day	Up to 10,000 sq. ft. per day
W/Ss-Plate	$3.23	$3.16	$3.06	$2.79
Other Lts.— Plate	2.96	2.87	2.77	2.50
W/Ss-Sheet	1.87	1.79	1.70	1.41
Other Lts.— Sheet	1.80	1.72	1.62	1.34
"C":				
W/Ss-Plate	$2.81	$2.74	$2.64	$2.37
Other Lts.— Plate	2.66	2.57	2.47	2.20
W/Ss-Sheet	1.87	1.79	1.70	1.41
Other Lts.— Sheet	1.80	1.72	1.62	1.34

Figures were made up in the period from December 8 to December 11, 1927. The date of December 11, 1927, is fixed in my mind, because that was a Sunday. I spent that day at Mr. Haskell's home. He was leaving that night to see Mr. Fisher, and wanted these quotations. We had to work rapidly, and this yellow slip was the slip that he took with him, which showed in the condensed form the information I have just given, namely, the original Fisher quotation of December 8, 1927, the new quotation with the [fol. 237] new celluloid price, and third, the new quotation when glass should be obtained at the lower price. These prices included all necessary edge work. In table "C"

prices ranged from $2.81 down to $2.20 per square foot, dependent on quality and quantity.

Q. That was for windshields?

A. Windshields ranged from $2.81 to $2.37; body lights, from $2.66 to $2.20, under the new glass prices when they became effective.

Q. Now, your table that you have referred to and have had written in the record as Table "B," was adopted at this price conference in the latter part of December, 1927?

A. Yes, sir.

Q. And how long did the prices on that table remain effective?

A. They were always quoted currently with the Table "C," with the statement that as soon as the glass price came down, the price of laminated glass would come down. In all big companies, large productive users, that was done. In the case of some of the smaller companies, we didn't notify them of the expected reduction on glass price, because they were bidding for current deliveries. It would depend largely whether we were talking about immediate delivery or something that might be deferred a while. In reality we got our first shipment of glass at the lower price in February, 1928, which was not highly satisfactory, and it was not until about June or July that we really felt safe in relying on the domestic source.

Q. So the Table "B" was the established price for standard equipment up until July, 1928, and thereafter Table "C" was used as the established price for standard equipment?

A. Yes. I should say June we felt confident of the glass supply, but the table was quoted all through the first six [fol. 238] months to be effective until we did obtain the glass.

Q. We understand that, but I was trying to get on the record when Table "C" actually went into effect and was quoted for present deliveries at those prices?

A. Around about June we began to get our shipments of satisfactory quality. These tables were all based on glazing quality of glass.

Q. Referring now to such business as was done with the Cadillac Automobile Company. That, I understand, was done through the Fisher Body Company and the Fleetwood Body Company. Is that correct?

A. Yes, sir.

Q. Were there any changes on quotations to Fisher or Fleetwood during the year 1928, after Tables "B" and "C" went into effect?

A. Yes, sir.

Q. Please state what those changes were and what the reasons for them were?

A. Tables "B" and "C" had been given to Mr. Fisher on December 12, 1927. Along about April of 1928, we had to put in a lower price quotation to Mr. Fisher, and did so, put in a lower quotation at $2.05 for all of the General Motors requirements. We could not get the business.

Q. Was any other subsequently quoted to the Fisher or Fleetwood companies?

A. Yes, sir. In September of 1928, the contacts having been maintained as indicated by the records, we were again asked to bid, and bid $2.05 for all General Motors business, and were offered that portion of the business that was made by Fleetwood Body Company in the east. They make some very special custom-built bodies for Fleetwood. When this was offered to us, we advised Mr. Fisher that we could not take that portion of his business, which was relatively small, at $2.05, and received $2.55 for it.

[fol. 239] Q. You mean, you quoted $2.55 for it?

A. Quoted and got the business. We delivered under that order, beginning in October, I believe, and continuing for approximately six months.

Q. Now, going to the Stutz business. What was the situation there with respect to these tables "B" and "C"? Were they quoted to the Stutz Company?

A. A quotation was made to the Stutz Company—I would like to explain one thing before that. In March of 1928 we considered whether we would use the same base tables with a reduction, if there was no edge work, and we estimated that there were eighteen lineal inches of edge work for every square foot in area of glass. Based on that average, we authorized our sales department to figure their quotations, if they were asked to bid on a specific blueprint, at nine cents under the table, adding half a cent per lineal inch for actual amount of edge work. The Stutz quotation was based on a deduction of nine cents on the windshield from Schedule "B". The same is true of the body lights, which were of sheet. When the actual order or contract was signed by Stutz, in reply to a request for

lower quotations, as has been testified to, the contract was signed at $2.25 a foot for unsealed glass plate, and $1.45 a foot for laminated sheet, unsealed. We had made our offer in two ways, namely, $2.25 unsealed and $2.55 for the sealed, on plate, and $1.45 and $1.55, respectively, on sheet. The seal is the binder which prevents deterioration. The contract was signed, and as is in the record, on the unsealed price, with the statement that it was to be unsealed. Before we commenced deliveries, they requested us to ship the sealed at the sealed quotations, so that our actual billings to Stutz were at $2.55 for plate, $1.55 for sheet, sealed; whereas, the contract itself calls for $2.25 and $1.45, respectively, unsealed. In May of 1929 we were forced to reduce our price to Stutz to meet their complaints, of being able to purchase lower, and gave them the sealed product [fol. 240] at $2.25 for the plate and $1.45 for sheet from then on.

Q. Was there any other reduction in the Stutz prices?

A. I believe there was a reduction necessitated to $2.05, just about the time Stutz got into financial difficulties.

Q. Now, passing to the Studebaker—and we are including in that Pierce-Arrow, because, as I understand, purchases were made through the one department—were the Tables "B" and "C" quoted to Studebaker during the year 1928?

A. I so understand from the records.

Q. And was there any change from those quotations to Studebaker during the year 1928?

A. 1928, we quoted in accordance with the Tables "B" and "C".

Q. There was no change during the year 1928?

A. No, sir.

Q. Was there any change to Studebaker and Pierce-Arrow during the year 1929?

A. Yes, right about the beginning. We quoted $2.15. June, 1929, we quoted $1.90.

Q. Were there any subsequent reductions in your quotations to Studebaker and Pierce-Arrow?

A. January, 1930, we quoted $1.90, including edge work, and $1.75 without edge work. That was our lowest quotation to Studebaker or Pierce-Arrow during that period.

Q. Now, passing to the Chrysler Company. Were the tables "B" and "C" quoted to that company?

A. Yes, sir.

Q. And were there any reductions in quotations during the year 1928 to Chrysler?

A. Yes. In the fall of 1928, Chrysler intimated that he was going to place his standard equipment, and asked us to [fol. 241] bid, and we bid in accordance with table "C". We didn't get the business.

Q. Was there any subsequent reduction on quotations to Chrysler than Table "C"?

A. I find no others in the record.

Q. Going now to the Hudson situation: Were the Tables "B" and "C" quoted to Hudson?

A. I find from Master's Exhibit 19 that was put in, an indication that Hudson was quoted first on December 12, 1927, which was the day Mr. Haskell was in Detroit to see Mr. Fisher. The work sheets indicate that Hudson was quoted in accordance with those schedules, plus a surcharge, and the reason given as shown on the work sheet is, the Hudson windshield was only 3 1/3 square feet, and at that time 20 by 50 was the standard celluloid sheet. Other windshields averaged about 4½ and because there was so much more waste in this, we added a surcharge. In 1928, when we again quoted Hudson, in accordance with Table "C," we again added a surcharge, which I believe was seven cents in our quotation.

Q. Do your records show any change from Tables "B" and "C" on quotations to Hudson?

A. September, 1929, quoted $1.90 per square foot.

Q. And change after that?

A. I don't find any in my record?

Q. Passing now to the Nash Automobile Company, do your records indicate quotations to Nash of Tables "B" and "C" during 1928?

A. Yes, sir.

Q. Were there any changes in the quotations to the Nash Company, changes from Tables "B" and "C"?

A. Not in 1928. Nash was not particularly interested in laminated glass in 1928, and it was not until well into '29 that they actually were ready to go into laminated glass.

Q. Well, was there a change in 1929?

[fol. 242] A. We quoted $1.90.

Q. To the Nash Company?

A. Yes; and did not get the business.

Q. Was there any change after 1929?

A. January, 1930, we quoted prices ranging from $1.75 to $1.90; and those were figured on certain lights, and still didn't get the business.

Q. Did Nash have its glass supplied through a body builder?

A. Our records indicate that our salesman called on both Nash and Seaman Body, whom we understand do a lot of work for Nash; whether exclusively or not, I don't know.

Q. How about Hudson? Do they do their own body building, or are their bodies built through a body builder?

A. I think they do their own. They get their windshields —some of their windshields, at any rate—through the manufacturers. A great many cars do that.

Q. You don't know which one?

A. No. It probably would vary at different times. I think Ainsworth have done some at times; probably Motor Products.

Q. How about Chrysler? Do they buy their bodies or build them?

A. I think some they buy. I have known a lot they buy from Fisher, because in 1927 we shipped a lot of glass to Fisher, and billed Fisher for Chrysler cars he was making.

Q. Do Studebaker and Pierce-Arrow build their own bodies or buy through body manufacturers?

A. I would say Studebaker would build their own; Pierce-Arrow may build some of their own, but all the high-priced cars you will find will buy some of their high-priced bodies.

Q. I think it has been already testified all of the Cadillac and LaSalle work was done through Fisher and Fleetwood?

[fol. 243] A. Yes, they are both subsidiaries of General Motors.

Q. Were these Tables "B" and "C" quoted to other manufacturers and body builders than the ones we have mentioned here, namely, Cadillac, Stutz, Studebaker, Pierce-Arrow, Chrysler, Hudson and Nash?

A. Yes, anybody that we knew of that we thought might be interested in laminated glass, or be induced to buy it. There are a number of small ones that were quoted.

Q. Coming down to the business done with distributors and jobbers, you have testified, I think, that during 1927 all that business was done at the figure of $4.80 a foot for

plate, and $3.60 a foot for sheet. Did you ever make any change from those prices?

A. Yes, sir.

Q. Will you state the times at which you made the changes, and what the changes were?

A. The original discount to the distributors and jobbers had been 40 per cent. from the list, the list being $8 and $6 respectively for plate and sheet. In March, 1928, we felt the sheet price was out of line, and we made the list on that $4 and increased our distributors' discounts to 50 per cent., making the net price to them $4 and $2 respectively, for finished lights—that is, lights finished to pattern.

Q. I understand that was a voluntary reduction on the part of the Triplex Company?

A. Yes, sir.

Q. Were there any subsequent reductions in the prices to distributors?

A. The next change that was made was to establish what we termed a block size price. In about the middle of 1928 we developed a process whereby the distributor or his dealer could cut and finish the light in the field from a rectangle corresponding to the rectangles in which raw glass is sold, and it was, of course, a big incentive to the [fol. 244] distributor not to have to carry a great number of different size lights. He could carry a smaller inventory and not be caught with obsolete stock. We made a price on that block size stock $3.50 on plate and $1.75 on sheet. That was our own; a price which we established when we developed the process.

Q. That was not forced by competition either?

A. No.

Q. Were there any changes from those prices?

A. There have been a great many changes from those.

Q. Take the first change that occurred.

A. November, 1928, we cut the price on the block size to $3 on the plate. We didn't change the price on the finished light, as we wanted to discourage the shipping of finished lights. January, 1929, we reduced our price on the finished light plate to $3.60.

Q. From what?

A. From $4 net. March, 1929, we reduced our block size plate to $2.25, and block size sheet to $1.40.

Q. Those were forced reductions?

A. Yes, sir.

Q. Any other change after that?

A. November, 1929, we reduced to $1.30 block size sheet quality. March, 1930, we cut our price on finished lights, plate quality, to $2.55 plate, and $1.75 finished lights sheet. At the same time, on block sizes, we reduced to $1.80 per square foot for plate and $1 per square foot for sheet.

Q. Those were forced reductions, both of them?

A. Yes, sir.

(Mr. Caulfield produces the Ford contract requested by Mr. Christy.)

Mr. Christy: Defendant's counsel asks that the copy of the contract with the Ford Company produced by the witness be marked for identification Defendant's Master's Exhibit "A."

[fol. 245] Q. Mr. Caulfield, have you your records here, or are you willing to state what prices you paid during the year 1928 for plate glass, when you purchased that plate glass from Pittsburgh Plate Glass Company?

A. I have no records here; but from memory I can state we paid their established market price, which at that time was 39 and 42 cents for the various size brackets we used most of. Those prices are referred to in the work papers that I worked out—39 and 42 cents per square foot of glass, in 1928, which was then established market.

Q. What was the 39 cents for?

A. As I recall it, it was for the size of glass known as the 2′ 8″ to 5′. That means a size between two feet and eight-twelfths and five feet.

Q. What was the 42-cent price for?

A. The 42-cent price was for the next largest size. I believe the 5′ to 7′ bracket.

Q. Those were the only brackets which you bought in 1928?

A. No, there were others; but those were the major ones. I would have to get my records to give you all of them.

Q. I wish you would at the next hearing produce an invoice from the Pittsburgh Plate Glass Company of each of the prices that you paid in 1928; and similarly an invoice of each of the prices that you paid in 1929; and similarly, of each of the prices that you paid in 1930.

A. There was no change in that period. There was a change in July of 1930, but that is subsequent to the accounting. However, I will bring invoices for each of those periods.

Q. Have you any records here from which you can state what prices you paid to the du Pont Viscoloid Company for pyralin during the year 1928?

A. I have no records here.

[fol. 246] Q. Do your work papers show that?

A. No.

Q. Will you please produce any invoices in the year 1928 showing the prices you paid to du Pont Viscoloid Company for pyralin; and similarly, invoices for the year 1929, and the first five months of 1930?

A. Yes, sir.

Cross-examination.

By Mr. Christy:

Q. Referring to this Ford contract, Mr. Caulfield, in paragraph 6: "The Ford Company agrees to pay the Triplex Company for laminated glass furnished by Triplex to Ford Company, at the cost of production to either the Ford Company or Triplex Company, at the option of the Ford Company, plus twenty cents for each Ford windshield, etc." In making up the cost of production to your company on these windshields or other glass included in that contract, what items did you include in your cost of production?

A. Labor, material, overhead.

Q. Can't you be more specific?

A. Yes, sir. The contract, you will note, in another clause, provides for accounting methods similar to the accounting methods pursued by the Ford Motor Company, and in that they take—they have a classification of direct labor; they have various classifications of overhead expense, such as water, power, light, heat, miscellaneous supplies, and such items as are generally considered expense. They also add the material cost.

Q. Did you include in your cost of production losses by shrinkage or breakage in process of manufacture?

A. Yes, sir.

Q. And you also, included, did you not, incidental or casual breakage of sheet glass stock before processing?

[fol. 247] A. If there were breakage, that would be included in the total cost of doing business with Ford.

Q. How did you handle these returns, if there were any returns?

A. There were no returns. They put inspectors in our plant, and accepted it f. o. b. our plant. I say there were no returns. There might have been a few, but the policy was f. o. b. our plant, and they have about seven men down there who inspect and accept.

Q. And I suppose any product rejected by these inspectors you simply wiped off and didn't carry in your inventories. Is that correct?

A. We wiped off by including in our charge to Ford the cost of that reject, less any salvage that might be obtained from it.

Q. That is, the cost of manufacture of the rejected material?

A. The Ford Company gave us orders to cut any windshields that might be rejected into wings for them, and we cut them into windshield wings without charging them for any material—just the labor and the overhead on that operation, and a profit.

Q. But the cost of manufacture of the rejects, when there were any, went into the cost of manufacture of the full product delivered to Ford?

A. It was all included in the price we charged them; yes, sir.

C. L. McHenry, recalled, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. You have produced the lease between the Pittsburgh Plate Glass Company and the Pittsburgh Safety Glass Company for the lease of the property on which the Pittsburgh Plate Glass Company's building is built?

[fol. 248] A. Yes, sir; this is a duplicate.

Q. That is a true duplicate, as I understand?

A. Yes, sir.

Mr. O'Shea: I offer the lease in evidence as Plaintiff's Master's Exhibit 20. There has also been produced here an agreement between the du Pont Viscoloid Company and Pittsburgh Plate Glass Company, dated December 14, 1927. I offer that in evidence as Plaintiff's Master's Exhibit No. 21.

Mr. Christy: I think I am entitled to a statement of the purpose of this offer.

Mr. O'Shea: The purpose of the offer is to show the close connection between the Pittsburgh Plate Glass Company and the Duplate Corporation, on the one hand, and between the du Pont Corporation and the Duplate Corporation on the other hand. The contract, in my opinion, states in specific words that the du Pont Corporation and the Pittsburgh Plate Glass Company entered into a joint venture to run the Duplate Corporation. That is my purpose, and in addition thereto, a clause which indicates that each of the contracting companies agrees together that the corporation to be formed would purchase exclusively its raw material from each of the contracting parties. I should use it in argument, on the theory the Duplate Corporation was not a free agent in buying from each of its sources of supply.

Mr. Christy: I believe that the latter fact just stated by counsel was stated by Mr. Wherrett yesterday in his testimony. The relation between the du Pont Company and the Pittsburgh Plate Glass Company and the Duplate Corporation has already fully testified to, so far as it has to do [fol. 249] with this case. The offer is objected to as merely cumulative, consequently immaterial, and otherwise dealing with matters entirely outside the scope of this inquiry.

The Master: The exhibits will be received for the present. Exceptions noted to defendant.

Q. In Plaintiff's Master's Exhibit 6-"A," the date appears to have been written in pencil. Do you know whether that is the true date?

A. This copy was made at our Creighton office, and I would see no reason why that should not have the correct date on.

Q. So far as you know, that "1928" is the correct date?

A. Yes.

(Adjourned until Wednesday, May 20, 1931, at 10 o'clock A. M.)

Wednesday, May 20, 1931, 10 o'clock A. M.

GEORGE E. SHARPE, recalled, testified as follows:

Cross-examination.

By Mr. Christy:

Q. Your firm of Lybrand Ross Bros. & Montgomery is one of high standing in your profession, is it not?

A. Considered so; yes, sir.

Q. Both in this country and internationally?

A. Yes, sir.

Q. And one or more of the members of your firm have published books dealing with methods and practices of accounting, and pointing out methods considered proper to be followed. Is that not so?

A. Yes, sir.

[fol. 250] Q. Will you give me the more prominent publications by members of your firm on that subject?

A. One of the members of our firm, Robert Montgomery, has published several books on accounting theory and practice, which are considered a standard.

Q. Please name the books.

A. "Accounting Theory and Practice," I think is the name of the title of it.

Q. Do you consider the principles discussed and set forth in that book, as approved by the author, to be correct and authoritative?

A. Generally, yes.

Q. You wouldn't say that there is anything radically wrong with the book, would you?

A. No, sir; but it is a matter of his opinion.

Q. You do not now think of anything said by Mr. Montgomery in that book with which you do not agree, do you?

A. I can't think of anything, but there may be some things in there with which I don't agree.

Q. You say at the outset of your summarized report, which has been put in evidence in this case, that the purpose of your work was to amplify and expand the account filed by the defendant in this case. Was that the only purpose?

A. Generally, yes.

Q. For purposes of discussion, I will select a line on page 13 of your general statement for December, 1929. Please

take the red figure in the first column, amounting to $20,737.33. Please state what it is and how you arrived at it.

A. The figure of $20,737.33 represents loss on glass sales for the month of December, before elimination of contested items of cost and expense. The manner of arriving at this figure is shown on our income account in December, 1929, statements, page 7.

[fol. 251] Q. Now, on page 7 of your income account for December, 1929, you have total gross sales, net of allowances and adjustments, $152,104.53. Where did you get that figure?

A. From the records of the Duplate Corporation.

Q. Will you point it out?

A. We have prepared a reconcilement of the gross sales, as shown by the Duplate Corporation's monthly statements with the gross sales as shown on each of our monthly income accounts, but I don't happen to have this reconcilement with me at the moment. I can get it.

Q. Will you kindly send for your papers and be prepared to answer this and other questions on the same line?

A. I will.

(Recess taken to enable witness to produce papers.)

The Witness: The total sales, as shown by the Duplate Corporation's monthly statement, marked Exhibit 18 for identification, amount to $152,787.39. The allowances, as shown by the same statement, total $1135.15, leaving a gross sales net of allowances amounting to $151,652.24. To this figure we have added $1615.97, representing cash discounts allowed to the Pittsburgh Plate Glass Company, the amount of which discounts is shown below as an expense on our income account; and from the total an amount of $1163.58 is deducted, which represents price adjustments shown in the Duplate records of January, 1930, which were applicable to December 1929 sales, and which we have applied thereto. The remaining figure of $152,104.53, as explained above, is in agreement with the amount of gross sales net of allowances and adjustments, as shown on our income account for December, 1929.

[fol. 252] Q. Did the Duplate Corporation actually receive the sum of $1615.97, which you have deducted for cash discount on sales, as stated by you?

A. No; the Duplate Corporation paid this amount to the Pittsburgh Plate Glass Company, and on their statement

it is taken as a deduction from sales; whereas, on our statement we have considered it as an item of expense.

Q. Did the Duplate Corporation actually receive that sum and then pay it to the Pittsburgh Plate Glass Company?

A. This amount was credited—the net result of the transaction was a credit to the Pittsburgh Plate Glass Company, and I assume that they received it.

Q. Why do you assume that they received it? Is there anything on the books to show that they received it?

A. As I understand it, the Duplate Corporation's account with the Pittsburgh Plate Glass Company contained various credits which were not specifically paid, and therefore I can't say whether this item was specifically paid to the Pittsburgh Plate Glass Company. As a matter of fact, the Pittsburgh Plate Glass Company, according to the Duplate Corporation's manner of keeping records, would be charged with the gross sales net of the cash discounts.

Q. In point of fact, did this sum of $1615.97 represent any part of the revenue actually received by the Duplate Corporation from its sales in the month of December, 1929, or at any time?

A. I will answer that question this way——

Q. Well, please answer it yes or no, and then explain, as you may think best.

A. Yes.

Q. Now, as to cost of gross sales on the sheet, page 7 of your statement for December, 1929, amounting to $139,536.44. Where did you get that figure?

[fol. 253] A. From the records of the Duplate Corporation.

Q. Will you please explain just how you made the computation?

A. Cost of Duplate sales, $120,394.01 plus the cost of sheet glass and other specialty sales, $7433.85, plus loss in stock Duplate, $11,708.58.

Q. And that, as shown on your statement on page 7 of your income account of December, 1929, shows an apparent profit of $12,568.09. Is that correct?

A. Down to that point that is correct.

Q. Now, please explain the modifications which you have made in that showing on your income account of December, 1929?

A. Which modification?

Q. Explain how, starting with this apparent profit of $12,568.09, you arrive at an apparent loss, as shown on page 13 of your summary for December, 1929, of $20,737.33?

A. The difference arises through expenses, as listed on our income account, and which total $33,305.42.

Q. That is, you subtract the footing of $12,568.09 from the sum of the column immediately beneath, amounting to $33,305.42, leaving you the figure stated as a loss of $20,737.33. Is that right?

A. Yes.

Q. Now, in the second column on page 13 of your summary for December, 1929, you show a figure of $31,471.80, entitled "Total of contested items of cost and expense eliminated." Where does that figure appear in your explanatory statement for December, 1929?

A. The detail of the first item, amounting to $22,834.76, which represents contested items of cost eliminated, is found on page 9 of our statements for December, 1929.

[fol. 254] Q. And the balance is set forth in the second column on page 7 of your income account for December, 1929. Is that right?

A. Yes; the balance totaling $8637.04.

Q. Now, referring further to the figures on page 13 of your summary, in the line December, 1929, the third column on that line, the figure of $10,734.47 represents the sum obtained by subtracting from the total items which you have eliminated, amounting to $31,471.80, the apparent loss of $20,737.33, as to which you have already testified. Is that correct?

A. Yes, sir.

Q. Now, what further adjustment is represented by the figure in the fourth column on that line, $11,440.91?

A. As stated in the heading, that figure, $11,440.91, represents the aggregate profits net of losses, as shown on schedule of sales, page 5. The column next to the last on that page, captioned "Profits," $15,238.65, less the total in the last column, captioned "Losses," $3797.74.

Q. Now, what connection is there between the figures shown on the December, 1929, line on page 3 of your general statement with the figures shown on the December, 1929, line on page 15 of your general statement?

A. The amount in the first column, $15,238.65, represents the aggregate profits on individual sales, as shown on page

5 of the December, 1929, statements, from which we have deducted $850.18, which represents credits which were not allocated to particular sales, and which we have included on the monthly schedule of sales under column captioned "Losses," which represents the last two items in that column, captioned "Losses," and we have also deducted the amount of $5141.27, which represents the total credits to customers for returned sales net of cost of returned sales, [fol. 255] as shown on the December, 1929, income account, page 7, leaving a balance of $9247.20, as shown under column "D," for December, 1929, on page 15 of our report.

Q. Just where do I find on page 7 of your detailed statement for December, 1929, the item of $5141.27, being the third figure on the December, 1929, line, on page 15, of what I have called your general statement or summary?

A. That item does not appear specifically, but represents the difference between $40,991.47, called returned sales, and the item of $35,850.20, called cost of returned sales.

Q. Now, generally speaking, your testimony regarding these December, 1929, items, on pages 13 and 15 of your summary, applies equally well to explain the connection between the items on the other lines for other months during the accounting period, in the other monthly statements which you have submitted. Is that so?

A. Yes, sir.

Q. Now, in obtaining the figure of $5141.27, in the third column on the December, 1929, line, on page 15 of your summary, by subtracting (as shown on page 7 of your December statement) from returned sales, $40,991.47, the cost of returned sales, $35,850.20, state the reason why you allow to the defendant under reduction of gross profits only this figure of $5000, instead of the actual figure of returned sales, amounting to $40,000?

A. Because that was an item which was to be contested, we understood, by the counsel for the plaintiff.

Q. And the effect of this is to assume the inclusion in the defendant's assets of the sum of $35,850.20, which you call "cost of returned sales." Is that correct?

[fol. 256] A. No, sir.

Q. Why not?

A. The item of $35,850.20 does not have any connection with defendant corporation's assets, as I see it.

Q. Where does this item of $35,850.20 appear in your summary of the profit and loss account of the defendant company?

A. It appears as part of the $40,991.47 credited to customers during the month of December for returned sales.

Q. If your firm was engaged by the defendant company to examine its books and give it a statement of its financial condition, what would you do with this item of $35,850.20?

Mr. O'Shea: I would like to take an exception, on the ground that testimony called for by this question is immaterial and irrelevant.

The Master: The objection is overruled. Exception noted to plaintiff.

A. I would call it to their attention as representing the cost of glass previously shipped to customers, which was found by customers to be defective or not coming up to the standards which they had ordered, and which I think that defendant corporation, if our clients, should need to know.

Q. Would you advise putting it in an inventory account as an asset?

A. As I stated before, it is no asset.

Q. What would you do with it, if you were preparing a statement of account for the Internal Revenue officers for the purpose of computing defendant's income tax?

Mr. O'Shea: Same objection.

The Master: Objection overruled. Exception noted to the plaintiff.

[fol. 257] A. On the Federal income tax statement it undoubtedly should be considered an item of loss, but it represents an item of loss, representing the cost of glass returned by reason of its being defective.

Q. Now, if the Master and the Court should decide that this loss of $35,850.20, stated by you as of the month of December, 1929, is properly chargeable as an expense against the revenues derived from sales, then the figure of $5141.27 in the third column on the December, 1929, line, page 15 of your summary, would be changed to $40,991.47, would it not?

Mr. O'Shea: Objected to as calling for a conclusion.

The Master: Objection overruled. Exception noted to the plaintiff.

A. Not to be included under the caption as stated at the head of the column.

Q. Well, whatever you have been pleased to call what is shown in that column, the effect would be to change the last figure in the 1929 December line from a black figure of $9247.20 to a red figure representing the difference between $9247.20 and $35,850.20?

A. If the Master and the Court should so decide, that would be a fact.

(Recess until 3:00 o'clock P. M.)

[fol. 258] Afternoon Session

GEORGE E. SHARPE, resumes the stand.

Cross-examination (continued).

By Mr. Christy:

Q. In referring to defective goods returned, I have referred more particularly to the fourth item in the December line, on page 15 of your summarized statement. If the Master and the Court should decide that the cost of manufacture of these returned defectives should be deducted from the revenue derived by the defendant from its sales, would not that also affect the figure of $15,238.65, the first one in the December, 1929, line, on page 15 of the summary.

Mr. O'Shea: Same objection.

The Master: Objection overruled. Exception noted to the plaintiff.

A. It undoubtedly would affect that amount but we don't know how much.

Q. In other words, referring to page 5 of your detailed statement for December, 1929, you have calculated the profits shown in the next to the last column of $15,238.65 on gross sales of 88,147 square feet, have you not?

A. Yes, sir.

Q. Can you tell me what was the feetage of returned defectives in that month?

A. It is shown on our income account, page 7—21,988 feet, 6 inches.

Q. And that is shown in detail on page 6 also, is it?

A. Yes.

Q. And why would it not be possible to make the computation under the assumption which I have made, and state what the result would be in the column represented by your figure of $15,238.65?

[fol. 259] A. It would be possible; it could be done.

Q. Well, will you please make the computation?

A. To make that computation would result in an increased cost per foot, which increased cost per foot would be applied to each individual sale as a separate profit or loss making sale, which would require some time to do.

Q. It would substantially reduce this figure of $15,238.65, would it not?

A. I assume that it might.

Q. Well, wouldn't it?

A. I think it would. I don't know how much, but it would.

Q. We will pass that point, because it would take considerable time to figure it out, as you say. I will ask you to return to the fourth column on page 15, and assuming that the Master and the Court should decide, as already assumed, that the cost of these returned defectives should be deducted from the defendant's receipts from sales, make the requisite changes in the showing in this fourth column on page 15, leaving the figures in the first column as they are.

Mr. O'Shea: Same objection.

The Master: Objection overruled. Exception noted to the plaintiff.

A. It can't be done without changing the figures in the first column.

Q. Can you not treat it just as you admitted would be the effect upon the fourth figure in the December 1929 line? That is, treat all the other figures the same way and give the results of your computation.

A. I believe that I stated that if $35,850.20 were deducted from $9,247.20 that there would be a considerable loss, which would be shown in red.

Q. And that would be how much?

[fol. 260] A. I can't determine that until the first figure is adjusted for us.

Q. Well, please deduct $9,247.20 from $35,850.20, and give the result?

A. $26,603.

Q. And that, under the assumption, would be shown in red where we have the figure of $9,247.20, on page 15 of your summary?

A. Providing the heading of that column were changed; because the $26,603 would not be net profit on profit-making sales, under columns "B" and "C", but would merely be the difference between two figures.

Q. And that, as you say, would not be an accurate showing, because it would take no account of the necessary adjustment of the figure in the first column on that page?

A. That is right.

Q. I have asked you to make the computation, confining it only to the fourth column, and leaving out of consideration any change which would be made in the first column. You do not seem to be willing to do this. Therefore, much against my inclination, I am compelled to ask you to make the necessary adjustment in the first column, assuming that the Master and the Court shall have decided that the cost of returned defectives shall be deducted from defendant's receipts from sales.

Mr. O'Shea: I object to that; first, because that computation ought not to be made at our expense; second, because it is immaterial and irrelevant; and third, because it means a recomputation of this entire account; and fourth, because the question calls for a conclusion, in that it assumes that the Master and the Court will decide the question inquired [fol. 261] about in a particular way. If the eventuality of the assumption happens, and the Master does hold that the returned sales are a proper charge against this plaintiff, in that event I assume that he will then call upon the parties to recompute in accordance with that decision.

Mr. Christy: I will withdraw the request for the present.

Q. Please refer to November 1929 line, on page 15 of your summarized statement, and state how you obtain the figure of $50,541.78, the first figure on that line?

A. That is the aggregate in our calculations of profits on individual sales, as shown at the bottom of page 6 in the November 1929 statements.

Q. And where, if at all, does that figure enter into your income account on page 8 of your November 1929 statements?

A. The difference between $50,541.78, as shown at the foot of page 6, under the column captioned "Profits",

minus the total, $3,786.97, shown as total under the column "Losses", leaves a net $46,754.81. Referring to our income account for November, 1929, page 8, profit on gross sales, as shown under the column captioned "Total", amounts to $13,145.13. Contested items of cost and expense to that point included in the next column, total $33,536.94. The sum of these two items equals $46,682.07. The difference of $72.74 arises through dropping of decimals in calculating our profits or losses on individual sales. A slight difference occurred in practically every month. The item of $72.74 appears on page 13, in November, 1929. It also explains the relation the same way as I have stated.

Q. Then referring to the third figure in the November 1929 line, on page 15 of your summary, namely $7,950.35, that represents the difference between the returned sales [fol. 262] item of $38,934.22 and what you call cost of returned sales, amounting to $30,983.87, as shown on your income account, page 8, November 1929. Is that correct?

A. That is correct.

Q. Then disregarding any adjustment of the first figure on the November 1929 line, if the Master and the Court should find, as before assumed, that the cost of the returned defectives should be deducted from defendant's receipts from sales, the figure of $30,983.87 should be subtracted from the fo th figure in the November 1929 line, namely, $41,616.95. Is that correct?

Mr. O'Shea: Objected to.

The Master: Objection overruled. Exception noted to the plaintiff.

A. That is not correct.

Q. Why not?

A. For the same reasons as discussed in answering the same question for December, 1929. It is exactly the same question.

Q. That is, just because my question would slightly change the total of that first column, as you have said. Is that accurate?

A. So far as deducting the $30,983.87 from the $41,616.95, it can be done, but I wouldn't know what to call it. What could it be called? I don't know, because, as stated before, it is based on the figure on the first column, $50,541.78.

Q. In other words, unless the assumption under which you undertake to make your statement of profits is correct,

in respect of the manner in which you have handled the matter of returned defectives, your profit figures would have to be completely recomputed and recast. Is that right?

[fol. 263] A. That is right.

Q. Now, in this income account of November, 1929, you have included in the column headed "Contested Items of Cost and Expense," the sum of $6,660.17, entitled "Commissions Paid to Pittsburgh Plate Glass Company." Is that correct?

A. Yes, sir.

Q. And the consequence of the inclusion of that figure in that column on your income account has been to include it in your ultimate showing of profits, has it not?

A. The result has been to eliminate from the cost and expenses that amount along with others stated, thereby decreasing the costs and expenses, and decreasing the average cost per foot.

Q. (Question read.)

A. Yes, sir.

Q. Did the defendant ever receive that sum?

A. No, the defendant never received that sum as commissions.

Q. Did it receive it as the price paid it for products sold?

A. The defendant corporation didn't receive commissions from the Pittsburgh Plate Glass Company.

Q. (Question read.)

A. To whom?

Q. Anybody—any purchaser.

A. Yes.

Q. Will you find it?

A. It is probably included in the gross sales of $270,747.90.

Q. I suppose in reaching this figure of $270,747.90, you took it from original sources, did you?

A. Yes, sir. That is, the sales, as shown by the Duplate records—gross sales.

Q. And paid to the defendant?

A. I assume it was paid to the defendant.

[fol. 264] Q. I am not asking you to assume. I am asking you for the fact. Was it paid to the defendant?

A. If they were able to collect it all. I assume that they were able to collect it all, because it was billed to the Pittsburgh Plate Glass Company.

Q. I am not asking about the Pittsburgh Plate Glass Company. I am asking about this defendant. The Pittsburgh Plate Glass Company has nothing to do with it.

A. They were billed for the sales—their customers. The fact whether or not they collected the $270,747.90 depends on whether the Pittsburgh Plate Glass Company paid for that glass.

Q. Well, here is Master's Exhibit No. 2, being an invoice to the Fleetwood Body Corporation, in the amount of $52.39, which I believe was a bill rendered by the Pittsburgh Plate Glass Company to that purchaser. On the back of the exhibit there is stamped the legend, "Pittsburgh Safety Glass Company to charge Pittsburgh Plate Glass Company as follows:—Total amount of invoice, less 3%". Did the Pittsburgh Plate Glass Company pay the Duplate Corporation the sum of $52.39, or the sum of $52.39, less 3 per cent?

A. According to the records at the Duplate Corporation, Pittsburgh Plate Glass Company paid the Duplate Corporation $52.39 in that particular instance.

Q. Will you show me that record, or a copy of it?

A. That particular invoice would be included with other so-called invoices for the month of November, recapped, and a monthly bill to Pittsburgh Plate Glass Company prepared. This monthly invoice would also show the commissions.

Mr. O'Shea: It is admitted that the Duplate Corporation did not receive in the month of November, or at any other time, the sum of $6,660.17, which is listed on the [fol. 265] month of November 1929 income account as commissions paid to Pittsburgh Plate Glass Company.

Q. Will you repeat what you said this morning as to the item "Cash Discount on Sales, $1615.97," shown on your income account for December 1929? I have forgotten just what you said on that.

A. I think that question arose in explaining to you the reconcilement of our gross sales figure to the gross sales figure that showed in their statement.

Q. Possibly. I don't know.

A. That $1615.97 is handled as cash discounts to Pittsburgh Plate Glass Company, considered in their statement as deduction from sales; considered in our statement of income account as an expense.

Q. What I want to get at is, if you will excuse me for not being clear on the point, did you include that in your cost of sales, or did you exclude it?

A. It is included as one of the items making up the cost of sales.

Q. Now, this morning you said of the item of $22,834.76 at the top of the second column on your income account of December 1929, under the heading, "Contested Items of Cost and Expense", that this was excluded from cost of sales as given by you. Is that correct?

A. Yes, sir, that is right.

Q. And that the details were given on page 9 of this December 1929 statement?

A. Yes, sir.

Q. Now, the first item on page 9 is called "Cutting Department Shrinkage Loss." What does that mean?

A. I don't know what it means, but it was just as stated on the company's Schedules "J" for that month.

[fol. 266] Q. Just to suggest—if the cutter should accidentally break a sheet of glass while manipulating his instrument over it, would you classify that as a shrinkage loss in the cutting department?

A. I don't know.

Q. How would you classify it, as an accountant?

A. Would probably classify it as a cutting loss or shrinkage loss, or some other term that might explain it.

Q. As an accountant, would you consider such a loss to be a part of the normal cost of production of the plant?

Mr. O'Shea: Objected to as calling for a conclusion.

The Master: Objection overruled. Exception noted to the plaintiff.

A. Not being familiar with the manufacturing processes of the safety glass business, I couldn't say.

Q. What manufacturing operations have you examined for purposes of cost accounting?

A. Varied lists of manufacturing companies.

Q. Have you ever examined the accounts of a plant for the manufacture of steel?

A. Yes, sir. Some kinds of steel, yes.

Q. Suppose that in tapping the steel from a furnace into the ladle, the workman should accidentally tip over a ladle full of steel, would you classify that as part of the cost of manufacturing the steel in that plant?

A. I would, if it didn't represent an exceptionally large percentage, and I believe that it would be up to experts in that manufacturing line to determine what is a normal loss and what is not.

Q. Well, there are some losses in operation always which you would call normal losses, aren't there?

A. Yes, sir; I should think so.

[fol. 267] Q. Would you expect a great many of these to be shown on your page 9?

A. Probably a portion might be considered normal losses.

Q. And to that extent, as an accountant, do you consider it proper to exclude from cost of manufacture all the items included in this figure of $22,834.76, shown on page 9 of your December, 1929, statement?

A. For the purpose of this account, I would say yes.

Q. What was the purpose of this account?

A. To furnish the counsel for plaintiff with the information that he wanted.

Q. Now, return to my last question. Assuming that normal losses in manufacture are included in this twenty-two-thousand-dollar item, would you, as an accountant, consider it proper to deduct the entire item from the cost of manufacture?

A. Not the entire item.

Q. On sheet 4 of your December, 1929, account, you have figured the profits and losses by deducting from the gross sales a computed cost, which you say is based upon averages per foot shown on income account. Is that correct?

A. That is right.

Q. And that cost was what? And just where is it shown on the income account?

A. The costs, as shown on the income account, are $1.63 plus, for Duplate; $7.24 plus, for bullet-proof; $1.00 for sheet; $2.23 plus for photo and picture; and 28 cents plus for combinations.

Q. We will confine ourselves to the average cost per foot for Duplate of $1.63 plus. How did you reach that?

A. Let us take the first item, 290 feet 3 inches, which is Duplate, on page 4. Calculated at a cost of $1.63 plus,

gives us the cost on that particular sale of $473.11. The [fol. 268] amount of that individual sale was $290.25, as is shown on there, resulting in a net loss on that particular sale of $182.86.

Q. And that same method was followed throughout your sheet 4?

A. Yes, sir; and all the other sheets that were the same.

Q. How did you reach this average cost figure of $1.63 plus?

A. Referring to the income account, page 7, the cost of gross sales for Duplate shown on the third column, amounting to $109,267.83, plus $22,684.21, shown further down in that column, representing the expenses, gives the total of $131,952.04. By dividing that by 80,932 feet 3 inches, shown above as gross sales of Duplate, will give an average of $1.63 plus.

Q. On sheet 4 of this December statement, I find it stated that the selling price of Duplate ranged all the way from $1 to $3 per square foot. According to your method of computation, it would make no difference as regards your computed cost of sales whether out of that 80,000 square feet of glass sold, 79,000 square feet were sold at $3 per square foot, and 1000 square feet at $1 per square foot; or whether 79,000 square feet were sold at $1 per square foot, and 1000 square feet sold at $3 per square foot. Is that correct?

A. It would make no difference; that is correct.

Q. Is that a rational way of stating an account?

A. Under the circumstances, yes.

Q. What circumstances?

A. The circumstances were that the Duplate Corporation kept their costs, or calculated their costs, on one item. They made no segregation of the costs of different grades of Duplate, if there were any, and we couldn't segregate the costs. If there was any difference as to the cost of glass they sold for $1 a foot or cost of glass they sold for $3 a foot.

[fol. 269] Q. Then if that is your theory, wouldn't it follow, in order to compute profits, you would have to take average selling price instead of individual sales, to be consistent?

A. No, I would say.

Q. I don't understand what you say; if I understood you right that the Duplate Corporation figured its costs—

that is, what you call cost of sales—at an average cost per square foot. Is that shown on this statement that was submitted to the Master?

A. Which statement do you mean?

Q. The one that is in evidence here, offered by the plaintiff.

A. Those various items of cost are charged to cost of Duplate, sheet, and so forth, without any segregation as to grades of Duplate or grades of any class.

Q. But no factor to represent an average cost of production is used, is it?

A. It is on their Schedules "J."

Q. Schedules "J" are not in evidence. I am talking about this account which is before the Master. Please answer the question.

Mr. O'Shea: Schedule "J" is in evidence. It was marked for identification.

Mr. Christy: It was marked for identification but not put in evidence.

A. It is not shown on there (referring to defendant's statement). They don't show any detail of their cost records on their account which they furnished the Court.

Q. Well, this account which the defendant furnished the Court does show the aggregate sales and the aggregate costs and the difference representing either profit or loss, does it not?

A. Yes, sir.

(Adjourned until Tuesday, May 21, 1931, at 10 o'clock A. M.)

[fol. 270] Thursday, May 21, 1931, at 10 o'clock A. M.

GEORGE E. SHARPE, resumes the stand.

Cross-examination (continued).

By Mr. Christy:

Q. Please refer to your December, 1929, schedule of sales, and state the feetage of sales of Duplate for that month. That is, excluding laminated sheet glass, bullet-proof glass, and whatever specialties there may be.

A. You will have to wait until I go through and add them up, because they won't agree exactly with the income account. According to the schedules of gross sales, the total number of feet of Duplate sold during the month of December, 1929, total 80,958 feet, and a total of sheet and other specialties amounted to, in feet, 7188 feet 8 inches.

Q. Now, will you please give me the total square feet of Duplate, understanding that term as in my last question, which you find was sold at a loss in the month of December, 1929?

A. In answer to your question as to the number of feet of Duplate sold at a loss, according to our schedule of gross sales for December, 1929, I will say that they aggregate 26,612 feet and 6 inches.

Q. Referring to the first leaf of your schedule of sales for the year December, 1929, I call your attention to the item sold to the Seaman Body Corporation, a total of 21,503 square feet 5 inches, at a selling price given by you of $2 per square foot, which you have split up so that it shows a loss of about $1700 on about 17,000 square feet, and a profit slightly less than $1700 on the balance of about 4500 square feet.

A. Under the column headed "Gross Sales, Pittsburgh Plate Glass Company to Customers," on page 1 of [fol. 271] December, 1929, statements, we show shipments to Seaman Body Corporation totaling 21,503 feet 5 inches, at the total gross billing of $43,020.90, giving an average rate per square foot of $2 plus. These figures were compiled from copies of the invoices examined. It seems to have been the policy of the defendant corporation in months subsequent to shipments, to grant credits to several corporations to whom they shipped glass, which they called "price adjustments." So far as were able, we have applied these credits for price adjustments or rebates back to the months the glass was originally shipped. We have identified credit memoranda issued to Seaman Body Corporation on 2442 feet, on which the Duplate Corporation has granted price adjustments of 90 cents a foot, on shipments of glass made during December, 1929. We have extended into our column captioned "Sales, Net of Allowances and Adjustments, but before returns, Pittsburgh Plate Glass Company to Customers," that portion of shipments to Seaman Body Corporation which were shipped

at a net selling price of $1.10 plus; thus resulting in a loss of $1281.96. Likewise, we found credit memoranda granting credit to Seaman Body Corporation of 40 cents, and which is on 14,623 feet 11 inches, shipped during the month of December, 1929, which reduced the actual net selling price of that portion from $2 plus per foot to $1.60 plus per foot, thus resulting in loss in sales on that glass of $428.49. Because of the fact that we could not specifically identify credit memoranda for price adjustment for any more than the 2442 feet and 14,623 feet 11 inches, we have assumed that the 4457 feet 6 inches was sold at a price of $2 plus per foot, thus resulting in a profit of $1651.40.

Q. I have looked through this schedule of sales for December, 1929, which is in your detailed statement for that month, for the sales made, particularly of Duplate at very low prices. There are some sales as low as $1 per [fol. 272] square foot. No one of them is identified by a purchaser except one so-called sale of one square foot, eight inches. Reminding you that I believe you have stated that in some cases the defendant was able to dispose of some rejectments, would you not think it likely that these one dollar per square foot sales were mainly rejectments which had been cut and sent out?

A. No, sir.

Q. Why not?

A. Because I don't believe that the determination of selling price was based on costs.

Q. You mean in those particular cases or in any case?

A. Generally. I am speaking about the selling prices per foot, as shown on here. I am not referring to any special $1 per foot bracket—generally. My reason being that shipments to the Fisher Body Corporation, at a price of $1.75 a foot, was undoubtedly just as good glass, or maybe better, as glass that was shipped at $3 a foot. Therefore, I believe that the selling price per foot was not determined by actual cost records of producing that glass.

Q. In any particular case or cases to which you refer in your last answer, was not edge work billed to the Fisher Body Corporation separately?

A. It so happens that in this particular month, shipments to Fisher Body Corporation seem to be very small, but during months in which shipments to Fisher Body

run very high, I believe that the average additional billing per foot for edge work was not in excess of 13 or 14 cents a foot, which was considerably above cost at that time.

Q. Above cost of what?

A. Cost of edging.

Q. So that certainly the men who fixed these prices took this special work into consideration, did they not?

A. Edge work, you mean?

[fol. 273] Q. Yes. You have mentioned it—thirteen to fourteen cents.

A. Granting that $1.75 was probably the flat rate per foot for edge work, edge work possibly averaged fifteen cents a foot, which Mr. McHenry might verify offhand, making a total of $1.90 per foot of possibly the best glass that Duplate Corporation manufactured; whereas, shipments to other customers run as high as $2.50 or $3.00 a foot, according to this sales schedule in front of me.

Q. So you would say that the officers who fixed these selling prices really took no account of the different qualities of glass that went into the product and the different values?

A. That is my opinion.

Q. I have here a memorandum which shows for the same bracket in October, 1929, a price of fifty-five cents per square foot for silvering quality glass; a price of forty-five cents per square foot for the quality called mirror glazing, and the price of thirty-nine cents per square foot for the quality called glazing, which would make a difference, recalling that each sheet of Duplate contains two square feet of glass for each square foot of area, of thirty-two cents per square foot, between the higher of these three prices and the lowest. Do you think that the very experienced officers who figured the selling price of these products did not take into consideration these variations in cost of material? Or do you think that your own opinion, in a business which you have said you know nothing about, is better than theirs?

A. I believe that had the selling price of the Duplate product been based on cost, said cost to include losses and so forth, that the Duplate Corporation would not have shown such losses including losses in production and defective product, during the twenty-nine months' period.

[fol. 274] Mr. Christy: I object to the answer as utterly irresponsive.

Q. (Question read.)

Mr. O'Shea: I object to the question, on the ground that the best evidence of what the officers did here is their own testimony, and this testimony calls for a conclusion of this witness; and further, inasmuch as it has asked for his opinion, the answer does give an opinion.

The Master: We will admit for the time being both the question and the answer.

Q. I have here a memorandum which shows for the same bracket in October, 1929, a price of fifty-five cents per square foot for silvering quality glass; a price of forty-five cents per square foot for the quality called mirror glazing, and the price of thirty-nine cents per square foot for the quality called glazing, which would make a difference, recalling that each sheet of Duplate contains two square feet of glass for each square foot of area, of thirty-two cents per square foot between the higher of these three prices and the lower. Do you think that the very experienced officers who figured the selling price of these products did not take into consideration these variations in cost of material?

Mr. O'Shea: Same objection.

The Master: Objection overruled. Exception noted to the plaintiff.

A. I shall make the same answer as above, namely, I believe that had the selling price of the Duplate product been based on cost, said cost to include losses and so forth, that the Duplate Corporation would not have shown such losses, including losses in production and defective product, during the twenty-nine months' period.

[fol. 275] Q. Mr. Sharpe, if you will try to answer my questions fairly, we will get along better. Please have the question reread, and give me a rational answer to it.

Mr. O'Shea: I object to that question—the characterization of his answer. The question has asked for an opinion, and the witness has given an opinion.

Mr. Christy: I have left the opinion out. I have asked him a question, yes or no.

The Master: We will hear it.

Q. (Question read.)

A. Do you want a reply yes or no?

Q. If that is satisfactory to you.

A. If my previous reply is not satisfactory, I will say no, if you want an opinion.

Q. You referred to sales of Duplate at $3.00 per square foot. On your statement for December you show sales at that price of less than 100 square feet out of the total of over 80,000, do you not?

A. Approximately 100 square feet.

Q. On the second of your sheets of sales for December, 1929, second sale from the top of the page to Fisher Body Company, 675 square feet, priced at $1.00 per square foot by Duplate Corporation to Pittsburgh Plate Glass Company, and priced at $1.75 per square foot by Pittsburgh Plate Glass Company to customer. It is a small point, but I would like to have you verify that, or state whether it is a mistake?

A. The 675 square feet representing sales to Fisher Body at $1.00 per square foot included, under the caption "Gross Sales Duplate Corporation to Pittsburgh Plate Glass Company," is correct as listed. However, we refer you to page 9 of our summary report for an explanation of such differences as these.

Q. Referring to your summary, on pages 2 and 3, where you are reconciling the figures of the defendant's report [fol. 276] with your own, you included on one side an item of $70,000 plus for speciality sales for the five months ended May 31, 1930, and a charge against that of $63,000 plus, the whole being practically cancelled by other adjustments. You say that this $70,000, together with the corresponding charge, is not included in the Duplate account. Were you informed why it was not included?

A. Yes.

Q. Why?

A. We were informed by Mr. McHenry that the specialty sales and costs of specialty sales were not included in the account filed for the five months' period ending May 31, 1930, for the reason that part of the production was manufactured under the old process and part under the so-called new process. As it was not possible for us to determine what was the old and what was the new, we have

included the sales and costs of sales as per Duplate books. Since the defendant corporation, according to the account filed, admits a certain portion of old process speciality glass manufactured during this five months' period, and since we were unable to determine the correctness thereof, we have included all sales and costs of sales of specialty glass sold during that period.

Q. I only want to make a rough reconciliation between the two reports. Were you not informed that practically all of this $70,000 represented another product than that covered by this accounting?

A. Yes, Mr. McHenry told us that.

Q. Then it appears on page 2 of your summary that there is a difference of about $39,000 between the two accounts, and it also appears that an obvious mistake of $35,000 was made by the Duplate Corporation in computing interest on investment during the year 1928. With expected minor adjustments, the two accounts practically agree, do they not?

[fol. 277] A. Whatever is stated there on page 2. That is what it states, I suppose.

Q. That is the effect of this statement?

A. The profits and losses as shown by the monthly income accounts differ $39,238.67, which is aggregate losses shown by the account filed by the Duplate Corporation.

Q. What I want to bring out is, if you will concede as much as that, that they are practically reconciled by the adjustment for this inadvertent overcharge of interest on the investment?

A. I don't admit that. I do admit, however, that the total profits or loss per monthly income accounts, before the elimination of certain items of cost and expense, differ in aggregate in the amount of $39,238.67, with the total loss for the two years and five months, as shown by the account filed by the Duplate Corporation.

Q. Referring now to page 12 of your summary, you show a profit on individual sales, net of losses and miscellaneous credits of $1,751,217.38. Is that correct?

A. Yes, sir.

Q. And you show on the same page returned sales, $812,770.93. Would you say that under your instructions you have not included that as a part of the cost of obtaining this profit. Is that correct?

A. The item referred to, called "Returned Sales," amounting to $812,770.93, doesn't represent our calculations of the cost of returned sales, but represents the aggregate credits granted to customers for returned sales during the twenty-nine months' period, as shown by the Duplate's books.

Q. And that you have declined to allow as a credit to the defendant against the profits listed immediately above. Is that correct?

A. No sir. This is merely a reconcilement. We are reconciling the figure of $1,825,337.63 to a red figure of $977,395.53.

[fol. 278] Q. I understand that, and that is what I am trying to do in a rough way. Now, in addition to this credit which you refuse to allow, there were also commissions paid to the Pittsburgh Plate Glass Company, which you also refused to allow, of $220,715.28, were there not?

A. At the beginning of your question you mentioned "this credit which we did not allow." Which credit do you mean—$812,770.93?

Q. Yes, sir.

A. Of that amount, $812,770.93, we have excluded $631,280.83, which represents our calculation of the cost of returned sales over the twenty-nine months' period. We have excluded this amount, $631,280.83, in calculating our average cost per foot of glass sold. We have not excluded the $812,770.93.

Q. Now, answer my question, please. (Question read.)

A. Regarding the item of commissions paid to Pittsburgh Plate Glass Company during the twenty-nine months' period, we have eliminated from the cost of sales an aggregate of $220,742.95 during the twenty-nine months' period.

Q. Now, Mr. Sharpe, you may not have meant to do so, but it seems to me you are unnecessarily complicating matters. My question has had only to do with the showing on page 12 of your summary, where you give the total alleged profit of $1,700,000 plus. It did not have to do with the adjusted figures of $1,600,000 plus, on page 15. As shown on page 12, you have a profit figure of $1,751,217.38, and you have refused to allow as credits against that figure $812,000 plus and $220,000 plus, making an ag-

gregate of $1,033,000 plus. Is that not right, in round figures?

A. Are you referring to page 12? There has been a lot of things that we have eliminated.

Q. Please answer my question.

[fol. 279] A. We have not eliminated $812,770.93 from the cost of anything, or from the profits, because $812,770.93 was already deducted as returned sales by the defendant corporation on its records. Regarding the reconciliation on page 12, which I think is referred to, as stated there, that is what it is. I will explain clearly any item there, but that merely, as I said before, is a reconcilement of one figure with another.

Q. I was trying to simplify your own statements, but you will not have it that way. Now, take the statement on page 15. Mr. O'Shea has stated that he claims the footing of column 4 on that page, amounting to $1,614,665.33. What is the aggregate of the returns which you decline to allow to the defendant to be subtracted from that figure?

A. You say to be substracted from that figure?

Q. (Question read.)

A. There is none.

Mr. Christy: Manifestly the witness has reached a state of mind under which I am unable to cross-examine him further. Protesting against this attitude, I have nothing further to ask.

Mr. O'Shea: I object to any such statement on the record, as being wholly unjust to the witness.

The Master: The statement of Mr. Christy may remain, together with the statement of Mr. O'Shea.

Mr. O'Shea: The witness has been making a diligent effort to answer the questions clearly and intelligently.

(Recess until 1.30 o'clock P. M.)

[fol. 280] Afternoon Session

Mr. Christy: In support of one of my questions this morning, I produced what purports to be a copy of an invoice from Pitsburgh Plate Glass Company to Duplate Corporation, dated October, 1929, for supplies of plate glass, and request that it be marked for identification Defendant's Master's Exhibit "B". I will undertake to prove it in due course.

Mr. O'Shea: We admit Defendant's Master's Exhibit "B", as produced by Mr. Christy, is a true copy of an original bill from Pittsburgh Plate Glass Company to Duplate Corporation.

GEORGE E. SHARPE resumes the stand.

Redirect examination.

By Mr. O'Shea:

Q. You were asked this morning with respect to the manner of treating the returned sales. Now, will you please, in your own language, explain pages 13 and 15 of your summary, marked here as Plaintiff's Master's Exhibit 9-A, and in that explanation tell us the manner in which the returned sales are therein reflected at all?

A. On page 13, in the fourth column, under the caption "Profits Net of Losses, as shown on Schedule of Sales", we show a total of $1,751,217.38, which represents the profits net of losses on individual sales for the twenty-nine months period as shown on our schedules of sales. On page 15, under the first column, captioned "Total Profit on Profit Making Sales, as shown on Monthly Schedules of Sales", we show a total of $1,825,337.63, which represents the aggregate of profits on individual profit-making sales, [fol. 281] as shown on our schedules of sales for the twenty-nine months. The reconciliation of this figure—that is, $1,825,337.53, to the figure $1,751,217.38, is shown on page 12, and from the total profits from profit-making sales totaling $1,825,337.53, as shown on page 15, we have deducted $29,182.20, which represents credits to customers which were not allocated to particular sales, and included on monthly schedules of sales, under column captioned "Losses". In addition, we have deducted an amount of $181,490.10, as shown under column "C" on page 15, which represents the difference between $812,770.93, the aggregate of credits to customers on returned sales, net of $631,280.83, which represents our calculation of the cost of those returned sales. In other words, the amount representing the total under the fourth column on page 15, $1,614,665.33 represents the profit on individual profit making sales, after the exclusion of credits granted to customers on re-

turned sales, and also our estimate of the cost of those returned sales.

Q. Would it be correct to say, then, that in arriving at the $1,614,665.33, which appears on page 15 of Plaintiff's Master's Exhibit 9-A, that you did not take into consideration the cost of returned sales?

A. That is right.

Q. And that the cost of returned sales is $631,280.83?

A. That is right.

Q. On page 2 of Plaintiff's Master's Exhibit 9-A, I believe you have stated that that page constitutes a reconciliation between the alleged losses stated to have been suffered by the Duplate Corporation on its defendant's statement of account, filed with the Master here, and which amount to $1,016,634.20, and the alleged losses stated to have been suffered by the Duplate Corporation on the monthly income accounts of $977,395.53. Is that correct? [fol. 282] A. I would say it is substantially in agreement.

Q. That is what you are doing on this page—reconciling those two figures?

A. Yes, sir.

Q. Now, then, the figure of $977,395.53 is an amount determined before taking into consideration any of the so-called contested items. Is that correct?

A. That is correct.

Q. And on that same page 2 of Master's Exhibit 9-A, the differences appear to be $39,238.67. That is correct, is it not?

A. That is correct.

Q. That difference is reconciled on page 3 of Master's Exhibit 9-A, is it not?

A. That is correct.

Q. Which consists of the admitted error of interest on investment to the extent of $35,000, does it not?

A. Yes, sir.

Q. And certain other minor adjustments?

A. That is correct.

Q. Which total the $39,238.67?

A. That is correct.

Q. That reconciliation on page 3 also takes into consideration, first, the selling price of the specialty sales, and secondly, the cost of such specialty sales, both of which items, to wit, the selling price of the specialty sales and

the cost of the specialty sales, you accepted from the books of the Duplate Corporation. Is not that the fact?

A. That is correct.

Q. Without any readjustment or refiguring of costs on your part?

A. That is correct.

Q. Now, then, on page 2 of the same Master's Exhibit 9-A, your reconciliation there is tabulated by months, and that, as I understand it, is a tabulation of the alleged losses to be found on the Duplate Corporation's books, except as [fol. 283] it may be adjusted by months, to give effect to certain entries in the months to which they belong. Is my understanding correct?

A. No, sir.

Q. Well, what does the tabulation on page 2 show?

A. The total of $977,395.53, as shown on page 2, represents the monthly losses net of profits per the monthly income accounts which we prepared for the twenty-nine months, which is in agreement in aggregate with the losses shown by the books, except as follows: The loss for the twenty-nine months, as shown by the Duplate Corporation records, aggregates $865,188.40, to which we add $25,000 interest on investment for the year 1928, $60,000 interest on investment for the year 1929, and $25,000 for the five months of the year 1930, included on the account filed but not taken from Duplate's books. These items of interest on investment, totaling $110,000, added to the losses shown by the company's books, of $865,188.40, plus an adjustment of $7,156.05, explained on page 3 of the summary, minus the three items also explained on page 3 of the summary—that is, $4,661.22, $118.42 and $169.28—give us net loss of $977,395.53, as shown on page 2.

Q. Page 13 of Master's Exhibit 9-A also constitutes a reconciliation, does it not?

A. Yes, sir.

Q. And that is the only purpose of its insertion in this 9-A?

A. Yes, sir.

Q. Now, then, you have been asked a number of questions with respect to whether the defendant company, Duplate Corporation, received the so-called items of commission. Those questions were first directed to the income account for November, 1929, and later directed to the amount of

commissions for the entire accounting period of twenty-ninth months. Now, we will take the November income of 1929, as a typical case of these commissions on this ques-[fol. 284] tion as to whether they were received or not received. Directing your attention to that month, you were first asked whether the Duplate Corporation received the amount of $270,747.90. Do you know whether the Duplate Corporation received that amount or any other amount?

A. No, sir.

Q. Now, the fact is that all you know is that on the books of the Duplate Corporation there is a charge against the Pittsburgh Plate Glass Company of $270,747.90, with a corresponding credit of $6,660.17, that credit being for alleged commissions due the Pittsburgh Plate Glass Company. Is not that the fact?

A. That is right.

Q. That is all there is to this question of commissions?

A. Yes, sir.

Q. You don't know of your own knowledge whether the Pittsburgh Plate Glass Company paid, or the Duplate Company received, anything, and when I use the word "received", I mean whether it received a check or whether it received cash?

A. I don't know.

Q. You are accepting their books from which a reasonable inference is to be drawn, that if the balances were in favor of Duplate, that Pittsburgh Plate had paid that balance, and if they were in favor of Pittsburgh Plate, that Duplate paid that balance?

A. I assumed that, yes.

Q. Is it or is it not the fact that the Duplate Corporation records show that that company used an average cost per square foot?

A. That is right.

Q. Now, on each month's income account, you show an average selling price also, do you not?

A. I think it is on every month. It is on the one in front of me—November, 1929.

[fol. 285] Q. And that appears on the November 1929, in the column headed "Duplate" and the sub-column, "Average per Foot," does it not?

A. Yes, sir.

Q. And that refers to just plate glass in that column?

A. Yes, sir.

Q. Similarly you set down an average selling price per foot for the bullet-proof?

A. Yes, sir.

Q. And similarly you have an average selling price per foot for the sheet and the photo and picture?

A. Yes, sir.

Q. Now, with respect to bullet-proof sheets and photo and picture you have accepted the costs of those as appear on the books of the Duplate Corporation, without any adjustment whatsoever, have you not?

A. We have; with the exception of a portion of expenses.

Q. That is, general overhead, you mean by a portion of expenses?

A. Yes, which we have not pro-rated over the various departments.

Q. But so far as manufacturing cost is concerned, you have accepted the books of the Duplate Corporation for those figures?

A. Yes, sir.

Q. Now, please state why you did that with those specialties—bullet-proof, sheet and photo and picture?

A. As an answer to that question, I refer you to page 16 of our summary report, paragraph 4: "We were informed that the costs of bullet-proof, sheet, and other specialty products were ascertained by the company in some instances by arbitrary apportionment. Because of the relatively small quantities involved, the costs of these specialties have been included in these statements we prepared [fol. 286] at the amounts shown by the Duplate Corporation's records."

Q. Referring now to monthly statement for December, 1929, page 1, the item on that page of a sale to Seaman Body Corporation of 21,503-5 area, $43,020.90, I notice that there is no rate per square foot under the heading "Gross Sales Duplate Corporation to Pittsburgh Plate Glass Company." Why is there that omission there?

A. That omission was for no reason at all. There was no purpose in leaving it out, because the average rate per square foot, as shown under the next caption—that is, "Gross Sales Pittsburgh Plate Glass Company to Customers"—was $2 plus.

Q. Just an error in tabulating?

A. That is all.

Q. Because it was your scheme in all other places, apparently, excepting isolated instances of this kind, to put that rate down there?

A. Yes, sir.

Q. Now, Mr. Sharpe, on cross-examination you were asked with respect to the income account for December, 1929, on the question of an item entitled "Cash discount on sales." In that particular month, it amounts to $1615.97. You were asked as to whether the Duplate Company received that amount. Have you any knowledge of your own as to whether they received it or not?

A. No, sir.

Q. In its treatment, however, on the income account of December, 1929, you have credited that amount, to wit, $1615.97, to the Duplate Corporation, under the general expense items, have you not?

A. Yes, sir.

Q. Which, of course, means that you have charged it against the plaintiff in this action, so far as this accounting is concerned?

A. Yes, sir.

[fol. 287] Recross-examination.

By Mr. Christy:

Q. Just in order to understand you, where, for example, you say at the top of column 4 on page 15 of your summary, "Net Profit on Profit Making Sales, Column 'A' Net of Columns 'B' and 'C'," you mean column "A" after deducting the items of column "B" and "C," do you?

A. That is right.

Q. Now, I understand that you have stated now that the alleged cost of returns which you have not credited to the defendant company, total $631,280.83. Is that correct?

A. That is correct.

Q. Will you please subtract that figure from the footing of column "D," namely, $1,614,665.33, and tell me without comment what your answer is.

A. The difference between $1,614,665.33 and $631,280.83 is $983,384.50.

Q. Now, what did you give as a total of commissions which you have refused to credit to the defendant?

A. The total commissions which we have included as contested items of expense total $220,742.95.

Q. Will you please subtract that item, $220,742.95, from the figure of $983,384.50, and again give me, without comment, the result?

A. By subtracting an amount of $220,742.95 from an amount of $983,384.50, you get a resulting figure of $762,-641.55.

Q. Now, will you please tabulate what you call contested items of expense other than the cost of returns and commissions?

A. The costs of unaccounted for and unsold product and certain expenses included in computing costs of individual shipments in accordance with instructions of counsel, not [fol. 288] including, however, commissions paid to Pittsburgh Plate Glass Company, aggregating $220,742.95, and cost of returned sales, as shown on the monthly income accounts, and aggregating $631,280.83, are as follows:

Deductions for Company Costs:		
Plate Glass Stock Losses		$180,243.28
Plate Glass Cutting Department Losses		98,767.93
Assembling Department Losses		25,889.15
Assembling & Pressing Dept. Losses		13,816.12
Pressing Dept. Losses		896,741.64
Carbital Dept. Losses		2,253.11
Pyralin Examination Dept. Losses		87,389.47
Edging Dept. Losses		269,851.23
Edge Work Operation Losses		740.08
Finished Duplate Stock Losses		83,751.68
Salvaged or Reclaimed Stock—included by company at values placed by company		162,235.83
Adjustment resulting from Revaluation of Inventories		151,435.65
Company's estimated stock of Rejects charged to process costs	$60,334.61	
Less amt. later deducted by company	59,645.69	
		688.92
		$1,973,804.09

Reduction of Deductions:		
Adjustment of cost of Duplate transferred to		
Inventory Expense	$1,263.47	
Experimental Expense	3,142.17	
Adjusted value of salvage or reclaimed stock taken into process	310,175.40	
[fol. 289] Adjustment resulting from revaluation of Inventories	159,731.40	
Miscellaneous	1,595.04	
		475,907.48
Net Total of Items from Duplate Cost of Sales		$1,497,896.61
Items of Expense Eliminated:		
Experimental Expenses:		
New Adhesive Development	$18,557.94	
Goggle Lenses and Decorative Glass Development	7,254.72	
Other	115,241.28	
Portion of general expense representing reduction in cost of:		
Advertising Expense	1,263.47	
Experimental Expense	2,669.79	
Expense of Triplex Patent Case	11,645.42	
Payments for Fellowship—Mellon Institute	11,250.00	
Miscellaneous Patent Expense included in General Expense	4,691.40	
Extraordinary Expenses	21,273.83	
Total Item of Expense eliminated in contested items		193,847.85
Total items of Duplate Cost of Sales eliminated as contested item		1,497,896.61
[fol. 290] Costs of unaccounted for and/or unsold product and certain expenses excluded in computing costs of individual shipments in accordance with instructions of counsel, not including, however, commissions paid to Pittsburgh Plate Glass Company, nor does this total include the cost of returned sales, as shown on our monthly income account		$1,691,744.46

Q. You said once in your cross-examination, and again in answer to Mr. O'Shea a little while ago, that the Duplate Company made use of average costs per square foot. Just what did you mean by that?

A. In determining the costs of sales for any month, they used total area of plate glass shipped, times an average per foot cost, as determined by their cost accounts, or Schedules "J."

Q. Very true. But in computing their profits, they use total costs against total sales, do they not? Whereas, you use alleged average costs against individual sales.

A. That is correct.

Q. So that individual sales at a high price show a profit which is fictitiously high, while individual sales at a low price show a very much lower, if any, fictitious profit or loss. Is that not true?

A. I don't know.

Q. I will ask you again to make the assumption which I made at several points before; that the Master and the Court shall decide that the defendant is entitled to credit against its revenue from sales the cost of manufacture of returned defective products, if you, as a skilled professional accountant were asked to compute the value of that defective returned product, how would you do it?

[fol. 291] A. I don't quite understand the word "value" as used.

Q. Let me put the question this way: Making the assumption thus stated, how would you proceed as a skilled professional accountant to make the account conform to that decision?

A. By deducting from $1,614,665.33, as shown on column "D," page 15 of the summary report, the amount of $631,280.83, representing our calculation of the cost of manufacture of the returned product, leaving a total of $983,384.50.

Q. And that would right there eliminate all this computation by months, would it not?

A. No, sir.

Q. So far as concerns this item?

A. I believe you are right, yes.

(Adjourned until Friday, May 22, 1931, at 2 o'clock P. M.)

Afternoon Session

Friday, May 22, 2 P. M.

GEORGE E. SHARPE, resumes the stand.

Redirect examination.

By Mr. O'Shea:

Q. In making up your account, if the books of the Duplate Corporation showed that any goods that had theretofore been returned were subsequently sold, did you charge the Duplate Corporation with those sales and credit the Duplate Corporation with the cost of those sales?

A. In answer to your question, I might say that if any returned product was resold, we were unable to determine the quantity, if any. However, the cost accounts—that is, [fol. 292] Schedules "J"—during the twenty-nine months' period, show that an aggregate of 255,889 feet 7 inches of salvaged or reclaimed stock was retaken into process at a cost, according to these Schedules "J," aggregating $162,235.83. We could not determine what portion, if any, of that total area represented returns from customers as rejects, or what portion represented rejects as determined by the plant employees or officials during the process of manufacture. However, we have charged into process this aggregate area at a total cost of $310,175.40, which represents our calculation of the value of the reclaimed or salvaged glass, which value we have calculated at the same average cost of manufacture per foot as was used for the transfer of regular glass from the preceding stage of manufacture during that month; thus crediting the defendant corporation with the difference between $310,175.40 and $162,235.83, or $147,939.57 over and above their recorded credits.

Q. Recorded where? Where did they record their claim?

A. On their account as filed.

Recross-examination.

By Mr. Christy:

Q. Now, please finish your answer to the last question. You say you credited the defendant with the cost of sales, but you don't say whether or not you charged them with the proceeds of the sales?

A. I would like to state again our position as regards our report as filed. We have not credited the defendant, or charged the defendant, with these so-called items, but have merely set forth as items to be contested upon advice of counsel for the plaintiff.

Q. My question has nothing to do with these matters, and you are only confusing the situation. I will ask again the question which Mr. O'Shea asked you, and ask you to an- [fol. 293] swer all of it, and not only one part of it. In making up your account, if the books of the Duplate Corporation showed any goods that had theretofore been returned were subsequently sold, did you charge the Duplate Corporation with those sales and credit the Duplate Corporation with the cost of those sales?

A. Yes, sir.

C. L. McHenry, recalled, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. Mr. McHenry, you were asked at the end of your examination when you were on the stand before, to produce what you described, I think, as requisition slips for raw glass from Duplate to Pittsburgh; that is to say, the slips, which went from Duplate to Pittsburgh Plate Glass Company. Have you found those requisition slips?

A. I have not. I was informed by the factory that they were destroyed.

Q. In your last testimony, as I recall it, you testified that two such requisition slips were made, both of which were sent to Pittsburgh Plate Glass; one of them kept by Pittsburgh Plate Glass, and one returned to the Duplate Corporation, on the truck carrying the glass. Did you look for both those slips?

A. The requisitions were only made for the glass by Duplate in single form; then at the Pittsburgh Plate Glass factory they made the shipping ticket in duplicate; the yellow copy, which is the original, is returned to Duplate on the truck, and a copy kept for their record. The original requisition of the Duplate Corporation and the yellow slip, which is their receiving ticket, I am informed, has been de-

stroyed, as they do not have room in their vault to carry these papers.

[fol. 294] Q. At any event, you couldn't find either the requisition slip or the delivery slip that came back to the Duplate Corporation?

A. I could not find them.

Q. Did you find a record that Pittsburgh Plate Glass Company kept of such deliveries?

A. I have their copies of the daily shipments, made from Pittsburgh Glass Company to Duplate.

Q. And you produced six typical examples of those—delivery tickets of Pittsburgh Plate Glass Company?

A. Yes, sir.

Mr. O'Shea: I offer in evidence the documents produced by the witness, and ask that they be marked Plaintiff's Master's Exhibit 22, 22-A, and 22-B, each consisting of two delivery tickets.

Q. Mr. McHenry, I show you Plaintiff's Master's Exhibit 22-B, and call your attention to the fact that that indicates deliveries to Pierce Arrow Company and Fisher Company. I will show them to you and ask you if that is not the fact?

A. It is delivery for glass for those cars.

Q. That is to say, that Master's Exhibit 22-B indicates that certain glass was delivered to Duplate Corporation for use as laminated glass on cars made by the Pierce Arrow Company and the Fisher Company. Is that correct?

A. Yes, sir.

Q. What quality of glass does Master's Exhibit 22-B indicate was delivered for use on those two cars?

A. My understanding is, where it is marked "Quality", and it is marked on here "1", for Pierce Arrow, it is first silvering quality, which would be for the Pierce Arrow. The Fisher delivery is also marked "1", which I understand is for first silvering. I am not familiar with these forms, but I understand from Mr. Datz that my explanation is correct.

[fol. 295] Q. Am I to understand then that Mr. Datz would be able to explain that better than you?

A. Yes, sir.

Q. He is more familiar with it?

A. Yes, sir.

PHILIP F. DATZ, recalled, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. Mr. Datz, will you explain what the item on Plaintiff's Master's Exhibit 22-B is, immediately under "Pierce Arrow"? That is to say, the "17/64"?

A. That is used by the Pittsburgh Plate Glass Company to designate the quality of glass furnished for Pierce Arrow's order on Master's Exhibit 22-B.

Q. Also, at the top of that same exhibit, Plaintiff's Master's Exhibit 22-B, there is indicated a delivery of glass for use by the Fisher Body Corporation, which has the same quality glass, is there not?

A. Yes.

Q. Just explain what that quality is?

A. That is what is known as first silvering quality.

Q. At what price is that quality purchased, and for that purpose I show you an invoice dated in May, 1929, in order that you may refresh your recollection. At what price quality 1 7/64 is purchased, and in that connection pick out a 2'/8"/5' bracket?

A. Quality 1, which is first silvering in the 2'/8"/5' bracket?

A. Quality 1, which is first silvering in the 2'/8"/5' bracket is sold to the Duplate Corporation at 45 cents per square foot.

Q. Now, right under that it says, "Quality 1, mirror glazing," does it not?

A. Yes, sir.

Q. Do you understand that mirror glazing is the same thing as first silvering?

[fol. 296] A. My recollection of first silvering and second silvering is that it is a higher quality than mirror glazing or glazing.

Q. But the classification on Exhibit 22-B is simply "1 7/64"?

A. That is correct.

Q. And in the bill to which you have been referred, that is the same quality that you purchased at 45 cents, is it not?

A. Yes, sir.

Mr. O'Shea: I now offer in evidence the bill from Pittsburgh Plate Glass Company to Duplate Corporation, dated in May, 1929, to which the witness has referred, for the purpose of refreshing his recollection, and ask that that be marked as Plaintiff's Master's Exhibit No. 23.

Q. Now, on the same Master Exhibits 22-B, under the heading "J. N. Smith," thereon, what does the "2" mean under the heading "Quality"?

A. That represents quality 2 7/64.

Q. And at what price was the Duplate Company purchasing that quality in May, 1929?

A. In May, 1929, it purchased quality 2 in this particular size which is in the 2'/8"/5' bracket, at 39 cents per square foot.

Q. Is that known as glazing quality?

A. Quality 2, as shown on the invoice, is known as glazing quality.

Q. Is there any silvering quality shown on that Master's Exhibit 23 at all?

A. No, there isn't any shown.

Q. Have you any recollection as to the amount of silvering quality that was sold by Pittsburgh Plate to Duplate Corporation during this entire period from January 1, 1928, to June, 1930?

[fol. 297] A. Approximately 1800 feet in 1928, and approximately 900 feet in 1929.

Q. Do you know the car on which the raw glass ultimately sold to J. N. Smith was used?

A. You mean the particular make of car?

Q. The particular make of car.

A. No, I don't.

Q. You can tell, can you not, from Plaintiff's Master's Exhibit 22-B that the higher quality glass was used on the Fisher Body Corporation's car, and the Pierce Arrow Corporation's car?

A. Yes, sir.

Q. And that the lower quality glass was used on such laminated glass that was ultimately sold to J. N. Smith?

A. Correct.

Q. Do you know what price the Fisher Body Corporation paid for its laminated glass?

A. No, sir, I do not.

Q. I show you the month of May, included in Master's

Exhibit 9, and ask you if, on looking at that, you can determine what price Fisher Body Corporation was paying for its laminated glass?

A. There are two prices shown here.

Q. What are they?

A. One is $1.75 per foot, and the other is $1.904 per foot.

Q. Now, similarly, does that month of May, constituting a part of Master's Exhibit, 9 show what price J. N. Smith was paying for the glass sold to it?

A. Yes, it does.

Q. And what price was J. N. Smith paying, according to that month of May schedule?

A. $2.50 per foot.

Q. So that that schedule indicates that the customer who was receiving the cheaper quality of glass was paying a [fol. 298] higher price than the customer who was receiving the first quality of glass, does it not?

A. According to the schedule, yes.

(Adjourned to meet upon agreement of counsel.)

Pittsburgh, Pa., Wednesday, June 10, 1931.

Met pursuant to adjournment.

Counsel present as before.

FRANK L. DYER, a witness produced on behalf of the plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. Please give your full name, address and occupation.

A. Frank L. Dyer; Ventnor, New Jersey; I am at present practicing as a patent expert.

Q. Will you please state what experience you have had in the interpretation of United States Letters Patent?

A. I practiced as a patent lawyer from 1892 until the middle of 1908, first in Washington, and then, beginning in 1897, in New York. In 1903, I moved my office to the laboratory of Thomas A. Edison, and was with him until the end of 1912. During the time I was in active practice, I had occasion to consider many thousands of patents, and

thus became familiar with their interpretation. In 1908, I gave up the practice of law, and became president of the several Edison companies in Orange, which offices I held [fol. 299] until the end of 1912. Beginning in 1914, I began to practice as a patent expert, and since that time have been retained in several hundred patent suits relating to various arts, and have had occasion to consider and interpret many hundreds of patents.

Q. Will you please state what experience you have had in buying and selling patents, negotiating licenses thereunder, and advising clients and others as to the value of patents, and what should be paid or received as a royalty thereunder?

A. During the period I practiced as a patent lawyer, I had occasion to negotiate the sale of licenses of many patents, and I became especially active in this respect commencing with the time of my association with Mr. Edison. I negotiated a large number of license agreements for him, as well as for the sale of patents. In 1908, I was one of the organizers of the Motion Picture Patents Company, which controlled the Edison patents as well as others in the motion picture field, and I became president of that company and remained in that office until the end of 1912. The Motion Picture Patents Company was essentially a patent-holding company, and I had occasion to negotiate a large number of license agreements while associated with that concern. Probably the major agreements were upwards of fifty in number, and the subsidiary agreements ran into the thousands. In 1910, I was one of the organizers of a company called the Condensite Company of America, a concern engaged in the manufacture of products similar to bakelite. I was treasurer of that company from 1910 until about 1920, at which time it was sold to the Bakelite Company. While with that concern, I had occasion to negotiate for licenses under many patents. In 1917, I became associated with a concern called the Lektophone Corporation, [fol. 300] a patent-holding company, owner of patents on loud speakers, and I have been associated with that company up until the present time, as president or vice-president. In that connection, I also had occasion to negotiate many license agreements under patents. In 1914, I became associated with the Vreeland Apparatus Company, a patent-holding company, and am still a director of that

concern. By reason of my association with the Vreeland Company, I have negotiated many license agreements with the General Electric Company, American Telephone & Telegraph Company, Radio Corporation of America, and other concerns, as well as with the United States Government.

I am an inventor and have taken out upwards of a hundred patents in this country, a good many of which have been sold or licensed, and in connection with my own patents I have had a very substantial experience in connection with the licensing of patents. I also am frequently retained by the United States Government as an expert in the valuation of patents, in cases pending before the Board of Tax Appeals. These cases have always involved controversies with patent owners as to the value of patent properties as of March 1, 1913, when the present income tax law went into effect.

Q. Have you testified in patent infringement accountings as to the value of patents, particularly as to what would be a reasonable royalty to be paid for the use of patents?

A. I have so testified in a considerable number of cases.

Q. Have you read and do you understand the Benedictus United States Patent No. 1,182,739, dated May 9, 1916?

A. I have and do.

Q. And have you read the opinion of Judge F. P. Schoonmaker, in the United States District Court, for the West-[fol. 301] ern District of Pennsylvania, filed in the suit of Triplex Safety Glass Company against Duplate Corporation, wherein the Benedictus United States Patent No. 1,182,739 was involved?

A. Yes, sir.

Q. You also read the opinion of Judge Joseph Buffington, of the United States Court of Appeals for the Third District, in the same suit?

A. I have.

Q. Assuming that 60 per cent. of the personal injuries in automobiles is due to flying glass, and that Benedictus in his patent, and particularly in Claim 12 thereof, brought to the art a new article of manufacture, to wit, laminated or non-shatterable glass, which subsequently was largely used in the automobile trade for automobile windshields and windows, and in such use had a tendency to reduce the danger of personal injuries, due to flying glass, and that the laminated or non-shatterable glass of the Benedictus pat-

ent provided an unclouded glass, i. e., glass having the same visibility over an extended period, as ordinary plate and/or sheet glass, which was the kind of glass used in automobiles prior to the advent of Benedictus' non-shatterable glass; and as such entitled to a broad construction and "partakes of the humane", and that the non-shatterable glass of the Benedictus patent, and particularly Claim 12 thereof, was both novel and original with Benedictus, and that Benedictus was a pioneer in the development of such non-shatterable glass; assuming further that at the date of the filing of the Benedictus application for the United States Letters Patent in suit, and until the commercial development of the Benedictus patent in suit by the plaintiff in 1926, there was no non-shatterable glass used by the automobile industry; and that upon the coming on the market of non-shatterable glass made in accordance with the [fol. 302] teachings of the Benedictus patent in suit, there was, by the inherent merit of such glass, created a rapid and broadening market, so that the sales of Benedictus' non-shatterable glass in the year 1928 amounted to 3,100,000 square feet; and that in the year 1929 it amounted to 8,632,000 square feet; assuming further that at the date when the defendant herein entered the field and commenced the manufacture and sale of non-shatterable glass, there was no other known process of making a commercially acceptable product, as defined in Claim 12 of the Benedictus patent, except by the process disclosed therein; assuming further that the Triplex Company, in the year 1926-1927, spent in the neighborhood of $250,000, for the purpose of creating a public interest in, and a demand for, non-shatterable glass, by means of advertisement and other forms of publicity, including full-page advertisements in magazines, such as "The New Yorker," "Saturday Evening Post," "Collier's," "Literary Digest," "Vogue," "Vanity Fair," and in various motor publications, and also by means of advertisements inserted in the daily newspapers in the cities where said Triplex Company had established distributors, including New York, Philadelphia, Boston, Cleveland, St. Louis, Los Angeles, San Francisco, Oakland and Chicago; assuming further that on October 17, 1927, a contract had been made between the Triplex Safety Glass Company of North America, and the Ford Motor Company, under which the Ford Motor Company agreed to instal non-

shatterable glass made under the Benedictus patent in its vehicles, both initially and by way of replacement, manufactured by said Ford Company or its subsidiaries, and in which the Ford Company also agreed to use the trade-mark "Triplex" in all advertisements and advertising literature in which Triplex or laminated glass is referred to.

[fol. 303] Based on the foregoing assumptions, what, in your opinion, would be a fair and reasonable royalty for the manufacture of laminated glass to pay for the use of the Benedictus Patent No. 1,182,739, and in answer to that question please give such reasons for the opinion expressed by you as in your judgment are proper and pertinent to the subject matter.

A. In my opinion, a royalty of 15 per cent. of the selling price charged by the manufacturer would be a fair and entirely reasonable royalty, under the circumstances. In expressing this opinion, I have assumed that the manufacturer would add to the actual cost, including all items such as labor, material, factory overhead and general expense, a profit of 40 or 50 per cent., which I think is fair. I have also assumed that the patent should participate in the profit, to the extent of one-half. I think a patent of the character of the Benedictus patent is entitled to participate to the extent of one-half the profits. Assuming the entire cost to the manufacturer to be one dollar per square foot, adding 40 per cent. as profit, would make the selling price $1.40 per square foot. One-half of this profit is 20 cents, and 20 cents is about 14¼ per cent. Should the manufacturer add 50 per cent., which is also fair, the selling price would be $1.50 per square foot. One-half the profit would be 25 cents, which is one-sixth of the selling price, and therefore 16⅔ per cent. The figure I gave of 15 per cent. falls between these two extremes. A license agreement under the Benedictus patent, in my opinion, would be of great value, for a number of reasons.

Mr. Christy: Mr. Examiner, I don't object to the witness reading, but I would like the fact to be noted on the record.

Mr. O'Shea: Mr. Dyer, you have a right to refer to any notes you have made from your vast experience, to refresh [fol. 304] your recollection as to what your experience has been in these respects.

A. (Continuing.) In the first place, as I understand it, the Duplate Company entered the field about January 1,

1928, at which time the assumption would be that the Benedictus patent was a valid patent, as it was later held to be by the District Court and by the Circuit Court of Appeals. In the next place, at that time the Triplex Company, by means of advertising, had created a very substantial demand for laminated glass, as appears from one of the assumptions of your question. The market, therefore, was an easy one, because of this demand. Furthermore, the glass would be sold to a relatively few customers purchasing in large quantities, instead of to a large number of customers buying in small quantities. The selling expense, therefore, would be small. The fact that a contract was made with the Ford Company, such as you referred to in your question, would, in my opinion, be of very great value, because, with the adoption of non-shatterable glass by Ford, the other manufacturers would find it practically necessary also to use non-shatterable glass. The Triplex Company had necessarily developed a substantial amount of practical technique, and had contractual relations with the British Company, by reason of which any improvements developed in England would be communicated to the Triplex Company, so that a licensee under the Benedictus patent would naturally have the benefit of any improvements which might be made either by the American or English company. Furthermore, in the case of the Duplate Company, as I understand it, by reason of its very close relations to the Pittsburgh Plate Glass Company and the Viscoloid Company, a ready and cheap supply of raw materials was immediately at hand to permit the manufacture of the Benedictus glass. In this respect, the Duplate Com-
[fol. 305] pany was favorably situated. Under ordinary conditions, a licensee, taking a license under a patent, generally receives it from the patent owner, either the inventor or some holding company, and therefore the entire expense and risk of development is imposed upon the licensee. Here all this had been done by the Triplex Company, and when the Duplate Company entered the field, practically all risk had been eliminated and a substantial demand had been created. In other words, a license to the Duplate Company would have been practically an invitation on the part of the Triplex Company to divide the business of the company between them.

Q. Mr. Dyer, in your testimony you referred to a Mr. Edison. Can you give the full name of the Mr. Edison whom you had in mind?

A. Thomas A. Edison, the well-known inventor.

Q. Are you familiar with the license agreement made between the Triplex Safety Glass Company of North America and the Johnston Glass Company?

A. In a general sense, yes.

Q. Have you read that license agreement?

A. I have.

(No cross-examination.)

SYDNEY W. CAULFIELD, recalled on behalf of plaintiff, testified as follows:

(Plaintiff produces copy of the license agreement between Triplex Safety Glass Company and the Johnston Glass Company, of Hartford City, Indiana.)

Direct examination.

By Mr. O'Shea:

Q. Mr. Caulfield, I show you a copy of the license agreement between Triplex Safety Glass Company of North [fol. 306] America and Johnston Glass Company, and ask you if that is a true copy of the license agreement existing between those two companies?

A. Yes, sir.

Mr. O'Shea: I offer the copy of the license agreement in evidence as Plaintiff's Exhibit 24.

Q. Mr. Caulfield, are you prepared this morning to state what the Triplex production for the first five months of 1930 was?

A. Yes, sir. Plate glass, exclusive of Ford, 57,372 feet; sheet laminated glass, exclusive of Ford, 66,192 feet; plate glass to Ford, 98,221 feet; sheet glass to Ford, 1,890,818 square feet.

Q. In your testimony when you were on the stand before, Mr. Caulfield, you spoke of a Mr. Calhoun, who was connected with your organization. Will you please state

when he left the Triplex Safety Glass Company, approximately?

A. August, 1929.

Q. Do you know with what concern he became connected after he left your concern?

A. Duplate Corporation.

Q. Do you know in what capacity he was connected with the Duplate Corporation?

A. In the sales department. I don't know what title he had, if any.

Q. In your testimony when you were on the stand before, Mr. Caulfield, you testified with respect to the established prices of Triplex Safety Glass Company for windshield plate, other lights of plate and windshield sheet, and other lights of sheet?

A. Yes, sir.

Q. You also testified, as I recall it, that you had sales of plate both for windshield and other lights to Lincoln Motor Car Company. Is that correct?

A. We did.

[fol. 307] Q. Will you state at what prices the windshield plate and the other lights were sold to the Lincoln Motor Car Company?

A. The windshields were $3.53 a square foot, and the other lights were $3.26 a square foot. That is in accordance with the established price, plus a surcharge because of their requiring a higher quality of glass than ordinarily was used, so that the $3.26 covers the $2.96 plus thirty cents additional for silvering quality glass and similarly the $3.53 covers the $3.23 on the established price, plus thirty cents.

Q. That was for the windshields?

A. That was for the windshields, and division lights are classified as windshields.

Q. You also in your testimony, when we were here before, testified with respect to the companies who adopted Triplex glass as standard equipment, I believe in the year 1927. My recollection of your testimony is that you stated that the Chrysler Company adopted it.

A. Yes, sir.

Q. Were there any other companies?

A. There were. I was thinking at the time of plate only. The Yellow Cab Company, I believe is the name, or the Yellow Truck and Coach—I am not sure which—but the

manufacturers of the Yellow Taxicab in Chicago adopted sheet laminated glass as standard equipment in 1927.

Q. And purchased their requirements from the Triplex Safety Glass Company?

A. Yes, up until early 1928.

Q. Have you brought with you your invoices for the purchase of plate glass from the Pittsburgh Plate Glass Company?

A. I have brought a few that are indicative of the type of invoice.

[fol. 308] Q. Will you produce those?

A. (Witness does so.)

Q. You have produced invoices from the Pittsburgh Plate Glass Company to the Triplex Safety Glass Company, dated respectively June 26, 1928, September 21, 1929, and November 9, 1929. Do I understand those are the original invoices from the Pittsburgh Plate Glass Company to the Triplex Company?

A. Yes, sir.

Mr. O'Shea: I offer those three invoices in evidence as Plaintiff's Master's Exhibits 25-A, B and C.

Q. Have you with you some of the invoices covering purchases of pyralin from du Pont Viscoloid Company to the Triplex Safety Glass Company?

A. Yes, sir.

Q. How many of those have you produced?

A. I have four. They cover the various sizes. That is why I picked those four.

Q. Are these invoices which you have produced the original invoices from du Pont Viscoloid Company to the Triplex Safety Glass Company?

A. Yes, sir.

Mr. O'Shea: I offer these four invoices in evidence as Plaintiff's Master's Exhibit No. 26; invoice dated February 27, 1929, to be marked as 26-A; invoice dated June 13, 1929, to be marked as 26-B; invoice dated December 17, 1929, to be marked as 26-C; and invoice dated January 31, 1930, to be marked as 26-D.

Q. Have you had prepared under your supervision a tabulation showing the prices at which the Duplate Cor-

poration sold its laminated glass in comparison with the established prices during the respective periods of the accounting period? That is to say, the established prices [fol. 309] of the Triplex Safety Glass Company?

A. Yes, sir; I have taken the monthly reports as submitted by Lybrand, Ross Brothers & Montgomery, and have had listed the sales that Duplate made, as shown by that report, and the price per square foot, as shown by that report, and have shown alongside each entry what our established price was for that class of customer and for the quantity sold each one.

Q. Will you produce that tabulation, please?

A. (Witness does so.)

Mr. O'Shea: I offer it in evidence and ask to have it marked as Plaintiff's Master's Exhibit No. 27.

Mr. Christy: I understand that at the conclusion of plaintiff's evidence in chief, my opponent will make a specification of the claim advanced by the plaintiff in this case. Therefore, without objecting specifically to this exhibit, I reserve objection until that statement of claim is made.

Mr. O'Shea: I know of no rule of law that requires me to make a specification of my claim, except as it may be stated or implied from the proof which I have submitted to this court. Obviously, of course, I will in my brief to this Court set forth in detail what my claim shall be for profits and damages.

Mr. Christy: I am at fault in my statement, and humbly apologize for having put on record what I understood to have been a statement casually made. I now object to the exhibit as apparently based upon the unwarranted assumption that if the defendant had not made the sales listed in this exhibit, the plaintiff would have made the [fol. 310] sales at the price at which it seems to have been alleged that it would have made them, or, for that matter, at any price.

The Master: The exhibit will be admitted for the present, and we shall determine later as to the relevancy in part or in whole. Exception noted to the defendant.

Q. Mr. Caulfield, have you prepared a tabulation indicating the losses occasioned to Triplex Company, by reason of its enforced reduction of its selling prices?

A. Yes, sir; I have prepared a list of those sales which we were forced to make under our established price, both

as to distributors and car manufacturers for standard or optional equipment.

Q. Will you produce that tabulation?

A. (Witness does so.)

Mr. O'Shea: Plaintiff offers in evidence the tabulation showing the plaintiff's sales at its enforced reduced prices, and asks that the same be marked as Plaintiff's Master's Exhibit No. 28.

Mr. Christy: Objected to. Based upon unproven and unwarranted assumptions that plaintiff could have made these sales or any of them, at its established price, or at any price above that at which it did make them.

The Master: Objection overruled for the present. I will decide later relative to the admissibility of any of all of this.

(No cross-examination.)

(Recess until 1:30 o'clock P. M.)

[fol. 311] FRANCIS L. O. WADSWORTH, a witness produced on behalf of plaintiff, having been duly sworn, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. Will you give your full name and address and occupation to the stenographer, Mr. Wadsworth?

A. Francis L. O. Wadsworth; residence, Pittsburgh, Pennsylvania; occupation, consulting engineer.

Q. Will you now please state what experience you have had in the interpretation of United States patents?

A. I have been involved in a number of patent suits, and in that connection, of course, I have had to study patents and determine what, in my opinion, was their proper construction and interpretation. I have also taken out upwards of two hundred patents of my own, and I have, in many cases, conducted prosecution of applications myself, and I am familiar with the practice in the United States Patent Office.

Q. Will you please state what experience you have had in buying and selling patents, negotiating licenses thereunder, and advising clients of yours and others as to the value of patents, and what should be paid or received as a royalty on their patents?

A. I have had quite an extended experience in that line, both in selling my own patents, or disposing of the rights in them, and I have had experience in helping my clients negotiate licenses for the disposal of their patent rights. I have also bought some patents for my clients.

Q. Has your experience involved patents pertaining to glass and glass novelties?

A. Yes, sir, a large number of them.

Q. Have you testified in patent infringing accountings as to the value of patents, and particularly as to what would [fol. 312] be a reasonable royalty payable for the use of patents?

A. I have testified in some accounting suits, but I do not recall for the moment whether the question of reasonable royalty was raised in those particular suits.

Q. Have you testified or assisted in the determination of the value of patents for tax purposes for the United States Government?

A. Yes, sir.

Q. Have you read and do you understand the Benedictus United States Patent No. 1,182,739, dated May 9, 1916?

A. Yes.

Q. Have you read the opinion of Judge F. P. Schoonmaker in United States District Court for the Western District of Pennsylvania, filed in the suit of Triplex Safety Glass Company of North America against Duplate Corporation, wherein the Benedictus United States Patent No. 1,182,739 was involved?

A. Yes.

Q. Have you also read the opinion of Judge Joseph Buffington of the United States Circuit Court of Appeals for the Third District in the same suit?

A. Yes.

Q. Assuming that 60 per cent. of the personal injuries in automobiles is due to flying glass, and that Benedictus in his patent, particularly in claim 12 thereof, brought to the art a new article of manufacture, to wit, laminated and non-shatterable glass, which subsequently was largely used

in the automobile trade for automobile windshields and windows, and in such use had a tendency to reduce the danger of personal injuries due to flying glass, and that the laminated or non-shatterable glass of the Benedictus patent provided an unclouded glass, i. e., glass having the same visibility over an extended period as ordinary plate and/or sheet glass, which was the kind of glass used in [fol. 313] automobiles prior to the advent of Benedictus' non-shatterable glass; and as such entitled to broad construction and "partakes of the humane," and that the non-shatterable glass of the Benedictus patent, and particularly claim 12 thereof, was both novel and original with Benedictus, and that Benedictus was a pioneer in the development of such non-shatterable glass; assuming further that at the date of the filing of the Benedictus application for the United States Letters Patent in suit, and until the commercial development of the Benedictus patent in suit, by the plaintiff in 1926, there was no non-shatterable glass used by the automobile industry; and that upon the coming on the market of non-shatterable glass made in accordance with the teachings of the Benedictus patent in suit, there was, by the inherent merit of such glass, created a rapid and broadening market, so that the sales of Benedictus's non-shatterable glass in the year 1928 amounted to 3,100,000 square feet, and that in the year 1929 amounted to 8,632,000 square feet; assuming further that the plaintiff herein established, maintained and received, in the years 1927 and 1928, from the distributors and jobbers, and automobile and body manufacturers, for optional equipment, a price of $4.80 per square foot for plate laminated glass, and $3.60 per square foot for sheet laminated glass, until March, 1928, and thereafter $2.40 square foot for sheet laminated glass; and that the distributor and jobber market and the automobile and body manufacturers' optional equipment market accepted such prices as fair, and paid such prices, and purchased at those prices; assuming further that the plaintiff herein established, maintained and received from automobile and body manufacturers for standard equipment (by which is meant sales to specific automobile manufacturers in substantial quantities, such as from upwards of 1000 square feet to 10,000 square feet per day) prices in accordance with the following tables:

[fol. 314]

"B"

	Up to 1,000 sq. ft. per day	Up to 2,000 sq ft. per day	Up to 5,000 sq. ft. per day	Up to 10,000 sq ft. per day
W/Ss-Plate	$3.23	$3.16	$3.06	$2.79
Other Lts.— Plate	2.96	2.87	2.77	2.50
W/Ss-Sheet	1.87	1.79	1.70	1.41
Other Lts.— Sheet	1.80	1.72	1.62	1.34

"C"

W/Ss-Plate	$2.81	$2.74	$2.64	$2.37
Other Lts.— Plate	2.66	2.57	2.47	2.20
W/Ss-Sheet	1.87	1.79	1.70	1.41
Other Lts.— Sheet	1.80	1.72	1.62	1.34

and that some automobile manufacturers accepted and paid such prices as fair prices and purchased laminated glass at such prices; based on the foregoing assumptions, and upon your experience as stated in your previous questions, what, in your opinion, would be a fair and reasonable royalty for a manufacturer of laminated glass to pay for the use of the Benedictus Patent No. 1,182,739, and in giving your answer to this question, please state such reasons as you deem proper and pertinent to the subject matter.

A. At what date do you assume this license agreement was granted?

Q. Assume that the license agreement would have been granted for the sales made by this defendant in or about the beginning of the year 1928, but in that connection I call your attention to the fact that this testimony covers any particular time.

[fol. 315] A. My answer to your question depends, of course, to some extent, upon the character of the license agreement. If the licensee received, in addition to the rights of operating under the Benedictus patent, the benefit of all the trade secrets and shop knowledge that was in the possession of the licensor at the date mentioned, and if there was no limitation as to the gross amount of the licensee's sales, or as to the territory in which

he might sell, then I would say that a fair and reasonable royalty for the use of the Benedictus patent would be 20 per cent. of the net selling price of the product; assuming of course further that the license agreement provided that a scale of prices should be established and maintained which were satisfactory to the licensor. If, on the other hand, the licensee was thrown upon his own resources in developing his own methods of manufacture of the product, and received only the benefit of the commercial development up to that time, in addition to his rights in the patent, and if he was in any way restricted as to the gross amount of his sales, or as to the territory in which he might sell, I would say that 15 per cent. of the net selling price would be a very fair and reasonable royalty, on the understanding, again, that the scale of prices at which the licensee would sell was one that would be satisfactory to the licensor. The reasons for my opinion that I have expressed are based upon my own personal experience with various license agreements of a similar nature. For example one of the outstanding instances of the acquirement of rights to the use of patents relating to the manufacture of glass is the agreement that was entered into between the Window Glass Machine Company and the American Window Glass Company in 1903, under which the American Window Glass Company acquired exclusive rights to the use of patents relating to the automatic manufacture of window glass on the following terms: The licensee engaged to pay a cash sum of $400,000 on the delivery of the [fol. 316] license agreement, and further agreed that he would pay the licensor a royalty which was for the first five years of the contract agreement one-half of the savings effected by the use of the machines in labor costs, and after five years, he would pay to the licensor a flat royalty of 15 per cent. of the selling price of the product. In that connection, I may say that the distinction is to be drawn between gross selling price and net selling price. The agreement between the two companies, which I have just mentioned, based the royalty on the gross selling price of the product, which is somewhat higher, of course, than the net selling price, under normal conditions.

Another example of a license agreement relating to the use of patents for the manufacture of glass is one

which was drawn between myself and the Pressed Prism Plate Glass Company, of Morgantown, West Virginia. That agreement provided that I should receive one-eighth of the authorized capital stock of the company, and in addition to that, one per cent of the gross selling price on all products above 500,000 square feet per year, and in further addition to that, a fixed cash retainer of, I think, a thousand dollars a year. The consideration in the matter of stock can be expressed in terms of royalty on selling price as result of the actual operations of the company under that agreement. The stock consideration entitled me, of course, to one-eighth of the profits of the company. As a matter of fact, the actual stock issued was less than the entire capital stock, and the percentage of stock I received was somewhat higher than 12½ per cent., but let that pass for the moment. The company was organized with the expectation of making a profit of at least 50 per cent. on the selling price of the glass, and in actual practice the profit which the company has received is very considerably in excess of that. In some cases, they have received a price as high as a dollar per square foot [fol. 317] for product that has cost less than 30 cents per square foot, and when I say it has cost less than that, I am referring to the manufacturing shop cost, including all overhead, but not to the selling expense. Using those figures as a basis for reducing my consideration to a royalty rate upon the selling price, it would appear that the equivalent royalty rate would be somewhere in the neighborhood of one-eighth of the average profit which might be roughly figured at 60 per cent. of the selling price, or expressed in figures, it would be about 7½ per cent, of the net selling price, exclusive of the additional one per cent. royalty which I was to receive on an output of over 500,000 square feet per year, but the consideration I received was, of course, only a part of the consideration received by the patent owners. The patent owners, as a matter of fact, received 50 per cent. of the authoriezd capital issued, and the return of the patent owners and myself together, therefore, would be on the basis of the above figures, about 25 per cent. of the net selling price.

Another good example of royalties received for the use of glass patents is that afforded by the various license agree-

ments that have been entered into between the Hartford-Empire Company and a number of glass manufacturers in the United States. Those license agreements provide for the payment of a fixed amount per gross of the glass articles produced and the royalty rates run from about nine cents per gross for small articles up to, I think, twenty-five cents per gross for very large articles. Those rates can be figured out in terms of royalty return on the net selling price without great difficulty. Take, for example, a royalty rate of ten cents a gross on all articles running from three to six ounces, as I recall the schedule—and I have a copy of it here, if you would like to see it. In that case the royalty rate on a four-ounce article would be a quarter of a cent a pound, and I know from long acquaintance with the [fol. 318] trade that articles of that weight are frequently sold at a price at least as low as a cent and a half a pound, and in some instances at even lower prices. That royalty rate of a quarter of a cent a pound would therefore in that case represent a royalty of one-sixth of the selling price, or about 16¼ per cent. I know of licenses that have been granted in other arts on which the royalty rates correspond to those of my answer.

One very good example of such a license is that under which the Oxford-Vance Company, one of my clients, handled the rights to the use of the Henry process on the reproduction of the wood grain surfaces on steels and other raw materials. The agreement under which the Oxford-Vance Company acquired these rights provided for the payment of a cash sum of $150,000, and for the payment of a royalty of five cents per square foot on a product that sold for thirty-five cents per square foot, representing a royalty of approximately 14 per cent. of the net selling price. The agreement further provided that the licensor should receive 10 per cent. of all royalties received by the licensee from sub-licensees. I could quote a number of other instances, if you wish me to do so, but I think those will be sufficient. I might further say that a very common basis for determining the royalty rate on inventions of established commercial value is to divide the profits equally between the licensor and the licensee. That is to say, the royalty rate or consideration received to the licensee would be about 50 per cent. of the profits obtained by the licensee. Personally, I have never been able to interest any manufacturer in a patent

composition unless I could show him a profit of at least 40 or 50 per cent. on the selling price of the product, and on that basis the fair royalty return would be half of that amount, or, say, 20 per cent. of the selling price received upon the material.

[fol. 319] Q. In your answer, Mr. Wadsworth, you assumed, I think, that the licensee would have the benefit of the manufacturing experience and trade secrets of the licensor. From your experience, have you found it customary that when the owner of the patents grants licenses thereunder, that a provision is made in such licenses to grant to the licensee the manufacturing experience and trade secrets of the licensor?

A. Yes, it is customary.

Cross-examination.

By Mr. Christy:

Q. In expressing your opinion upon the subject of reasonable royalty, did you take into consideration any matters other than those stated in the hypothetical question which was asked of you and those stated in your answer?

A. Yes, I think unconsciously I may have taken other matters into consideration, Mr. Christy; such matters, for example, as my views as to the possible commercial development of shatterproof glass.

Q. Well, reference was made to a production of about 8,000,000 square feet in one year. State whether or not, in making your estimate, you took into consideration the cost of production of that 8,000,000 square feet, or any part of it, either by the licensor or the supposed licensee. I am asking for facts and not guesses.

A. Yes, I did take it into consideration.

Q. Do you know the cost of manufacture?

A. No, not absolutely.

Q. Then why do you answer my last question that way?

A. Because I know a good deal about the cost of manufacturing various glass articles. To be specific, assuming that the cost of the glass in the shatterproof product was forty cents per square foot, and assuming that the cost [fol. 320] of the celluloid in that product was twenty cents a square foot, which would represent a cost of stock mate-

rial of one dollar per square foot, I would say from my long experience in the glass business, that the finished product ought to be produced at a shop cost not greater than 150 per cent. of the cost of the stock and material.

Q. You say ought to be produced?

A. Yes.

Q. You do not assert that it was produced?

A. No, I know nothing about the actual cost of production.

Q. Were you the plaintiff in the suit in equity entitled Wadsworth v. Pressed Prism Plate Glass Company, in the United States District Court for the Northern District of West Virginia, in which the opinion of the United States Circuit Court of Appeals for the Fourth District is reported in 239 Fed. Report 507?

A. Yes, sir.

Q. You testified as a witness for the defendant, did you not, in a window glass patent suit, brought by the owner of the patents, for the manufacture of window glass, to which you have alluded, against the Consolidated Window Glass Company and other defendants?

A. Yes, sir.

Q. Can you tell me offhand the number of patents which were involved in that suit, which were finally decided by the Court of Appeals for the Third Circuit to be of a basic or fundamental character in the production of machine-drawn window glass?

A. I think there were some seventeen or eighteen patents involved in that suit, Mr. Christy, but I can't be sure of the exact number. Of those patents, several were held by the Third District Court of Appeals to be of a basic value. [fol. 321] Q. Can you tell me in round numbers how many patents were involved in the original window glass license and how many patents that license covered at the time of the expiration of the earliest one?

A. At the time the contract was drawn, I think there were only some seven or eight patents and patent applications listed on the agreement. I can't answer the latter part of your question, Mr. Christy.

Q. You would say fifty or more, wouldn't you?

A. I think so.

(Adjourned to meet upon agreement of counsel.)

Proceedings resumed at a meeting by agreement of counsel held at the offices of Messrs. Christy, Christy & Wharton, Pittsburgh, Pennsylvania, commencing on Wednesday, January 27, 1932, at eleven o'clock A. M.

Present: G. Dixon Shrum, Esq., the Master; Ambrose L. O'Shea, Esq., of counsel for the plaintiff; Marshall A. Christy, Esq., William Watson Smith, Esq., L. E. Hickman, Esq., counsel for the defendant.

COLLOQUY

Mr. O'Shea: Before I close I would like to offer in evidence, as a part of this record, the supplemental bill of complaint in the suit in Equity No. 2295, as Plaintiff's Exhibit No. 29; the answer in the same suit as Plaintiff's Exhibit No. 29-A; the order permitting the filing of that supplemental bill as Plaintiff's Exhibit No. 29-B; and the interlocutory decree as Plaintiff's Exhibit No. 29-C.

[fol. 322] Mr. Smith: Will you please state the purpose of the offer?

Mr. O'Shea: This was a suit supplemental to the instant suit here, the purpose of which was to make Pittsburgh Plate Glass Company a part to this suit and responsible for any damages that may be recovered in this instant suit. That bill was answered by the defendant, and the Court allowed the filing of the supplemental bill and eventually entered therein an interlocutory consent decree.

Mr. Smith: There would seem to be no reason for the offer of these exhibits in these accounting proceedings, so far as counsel for the defendants are able to learn. We, therefore, object to the offer as incompetent and irrelevant.

The Master: We will receive them for the present and render a decision later as to whether they are relevant.

Mr. O'Shea: The purpose is to put into this record the fact that the Pittsburgh Plate Glass Company is now a party to this suit, and it has been decreed by the Court the Pittsburgh Plate Glass Company is responsible.

(Plaintiff closes its prima facie case.)

[fol. 323] Defendants' Testimony

ROBERT L. CLAUSE, a witness produced on behalf of the defendants, having been first duly sworn, testified as follows:

Direct examination.

By Mr. Christy:

Q. Your approximate age, Mr. Clause?

A. Forty-one years.

Q. Please outline in a general way your education and experience since graduation.

A. Graduation from college?

Q. Yes.

A. I graduated from Cornell University in the year 1914—mechanical engineering. Following my graduation, I worked in the engineering department of the Pittsburgh Plate Glass Company for a year, and then spent approximately five years at their various plants. Following this period, I spent a short time, approximately six months, at three of the company's warehouses. I was then transferred to the general office, where I held a minor position in the manufacturing department. Later became general superintendent of the plate glass factories, and later a vice-president of the company and chairman of the manufacturing department.

Q. And for how long a time have you been vice-president of the Pittsburgh Plate Glass Company and in charge of its manufacturing operations?

A. I have been a vice-president of the company for about seven years.

Q. And during all that period the head of the manufacturing department?

A. Yes, sir.

[fol. 324] Q. Have you also been connected with the company, in this case, now known as the Duplate Corporation, and, if so, during what period of time and in what capacity?

A. I have been intimately connected with the Pittsburgh Safety Glass Company and the Duplate Corporation since its beginning in January, 1928, holding position of vice-president in charge of operations.

Q. And in connection with your position with the Pittsburgh Safety Glass Company (later named the Duplate

Corporation) have you been familiar with its manufacturing operations?

A. I have been intimately associated with the operations from the very start.

Q. And practically the executive head of operations?

A. Yes, sir.

Q. It is already in evidence that the Pittsburgh Safety Glass Company commenced operations about January 1, 1928. Will you please state the conditions under which the company commenced to operate, and in a general way its early history?

A. Actual operations began in the spring of 1928. The building in which operations were started was a storage shed originally used by the Pittsburgh Plate Glass Company at Creighton, Pennsylvania, and remodeled slightly for the accommodation of the first equipment which we installed.

Q. About what was the size of that building?

A. The approximate size of the building would be forty to fifty feet wide and about eighty feet long; a one-story building. Before beginning actual operations in this building, we, of course, remodeled it, but knowing what we do today we appreciate that the surroundings in which we attempted to manufacture safety glass were entirely inadequate, the building, not being designed for the operation, [fol. 325] had no facilities for cleanliness which is one of the first essentials in the production of safety glass of this character.

By Mr. Smith:

Q. What kind of a floor had that building?

A. A concrete floor was laid in the building before we started operations. The walls were hollow tile; the roof was an inch board roof with tar paper covering. In the spring, at the time I mention, we were producing a very small quantity of safety glass, a large part of which was used for observation and test. The demand for safety glass in automobiles had not yet been created, and such orders as were received were for replacement jobs where safety glass was put in cars in place of plate glass. The quantity of orders available were so small that they did not permit an operation of any consequence and, as the result, the sales department of the Pittsburgh Plate Glass

Company, also acting as sales agents for the Pittsburgh Safety Glass Company, approached the Fisher Body Corporation and were successful in influencing them to put duplate in the Cadillac and La Salle cars. Up to this time we had employed from twenty-five to thirty men. With the acquisition of this order it was necessary to expand very rapidly, and we actually employed approximately four hundred men in the building already referred to, operating three shifts in order to get out sufficient product to satisfy the orders placed by the Fisher Body Corporation.

By Mr. Christy:

Q. What was the quality of this labor that you had to employ?

A. Well, Mr. Christy, it was just what could be picked up at the time. Operations in the Allegheny Valley at that period were quite brisk, and the problem of getting an organization of some four hundred men was no small order. [fol. 326] Q. Were they experienced?

A. Very few of the men had any experience in the plate glass business and a still fewer number had any experience in the safety glass business. When a company such as ours undertakes to supply an automobile account, they have a moral obligation that shipments will be made in accordance with the releases which they send you, and if there is a break-down in those shipments, it means the closing down of the assemoly plants where the automobiles are manufactured. We soon found that the surroundings in which we were operating were entirely inadequate and a second shed-like building was added to the existing one, about sixty feet in length, being the same width as the present one. The process which we used, and believed to be a sound one, broke down in many respects, causing defects varying in character to appear in the product, so that it was necessary to operate at a very much higher rate of production than the actual orders from the automobile accounts called for, to fulfill the releases which we were obligated to make.

Q. What do you mean by "releases"?

A. An order, Mr. Christy. That is a term used by the automobile accounts. In other words, we felt obligated to produce at all cost sufficient duplate of sound quality to satisfy this account, regardless of the number of duplates

started through the operation to give the right number required. In brief, our rejection was very high.

Q. What were the causes for these excessive rejections, if you can give them in an order that can be understood?

A. Well, the defects which could crop into this product known as safety glass are so many and so varied that I don't believe I could answer your question in one statement. To enlarge on your question, however, I think all people going into the safety glass business at the outset [fol. 327] had the impression that it was rather a simple thing of taking two pieces of glass and one piece of celluloid, and once combined you had a sound piece of safety glass. The celluloid people themselves didn't know much about their own product, and in many cases the celluloid was found to be defective after it was fabricated into safety glass, and many defects in celluloid were discovered about which the celluloid people knew very little. To touch on this point briefly, these defects today are referred to as scum, haze, smudge, and so forth, all being defects that had never been considered in the production of celluloid for other purposes, but nevertheless making a defective safety glass which was not acceptable to the automobile trade.

Q. How about the sticking together of the elements which made up the piece of duplate?

A. I don't believe I understood your question, Mr. Christy.

Q. I mean what defects, if any, were caused by insufficient cementation, if I may so express it?

A. Well, at this stage in the industry I believe the defect in safety glass known as a let-go or separation, which occurred at the edge, was looked upon as being a defect in cementation, as you ask your question.

Q. Did you have many of these edge let-gos, and what was the cause of it?

A. These edge let-gos or separations were one of our serious problems and were caused entirely, I should say, by a defect in our process rather than the lack of proper cementation. At that time we employed what was known as the rubber bag autoclave system whereby two plates of glass, with a sheet of celluloid between them, were put into a rubber bag; the rubber bag was evacuated, and then a number of rubber bags were put on a rack and put into an autoclave which was filled with water, to which

heat and pressure were added. Before inserting the safety [fol. 328] glass sandwich in the rubber bag a piece of canvas was wrapped around it to protect the rubber bag from the sharp corners of the glass, because when the bag was evacuated the bag pulled down over the edges of the glass in a very intimate manner.

Q. Now, Mr. Clause, if you will excuse me for asking questions a little more in detail, I understand at the start the two sheets of glass with the interposed celluloid were sealed together preliminarily. Then please follow and state what the next operation was.

A. By sealing together I judge you mean held in some fashion so one would not slip upon the other.

Q. That is it exactly, with an interposed layer of celluloid.

A. Yes.

Q. Then I understand you put that sandwich, if I may so call it, into a rubber bag?

A. Yes, sir.

Q. And what was the character of this rubber bag? That is, what did it look like? How big was it?

A. These bags were about thirty inches wide and about fifty inches long; flat, like an envelope that opens at the end.

Q. And then the rubber bag was closed in some way and the air exhausted from it? Is that what you mean?

A. Yes, sir.

Q. Why was the air exhausted from the bag?

A. Well, without taking the air out of the bag, you might have air in the sandwich of glass, so that under the heat and pressure applied to the exterior of the bag when put in the autoclave you create a very high pressure within the bag and do not get the pressing effect which was desirous to make the finished product.

[fol. 329] Q. That is, you wanted to exhaust the air from the rubber bag so that you could effectively apply pressure (with heat) to the sandwich inside the bag? Is that it?

A. Yes, sir.

The Master: Mr. Clause, will you tell a bit more about this autoclave?

Q. Now, what do you mean by the autoclave?

A. An autoclave is a chamber which can be sealed and of sufficient strength to withstand the pressure in this case

to which we wished to subject this product.

Q. You mean it was a tank?

A. It was a steel tank with a tight-fitting door.

Q. About what size?

A. About four feet in diameter and about twelve feet long. Into this autoclave racks on which the rubber bags were supported were rolled in, the door closed and sealed, water pumped in, then circulated, raising the temperature and the pressure.

Q. What was the object of raising the temperature and the pressure of the water?

A. That was the means of pressing the two lights together.

Q. That is, the two pieces of glass with the celluloid?

A. The two pieces of glass with celluloid between them.

Q. Making a permanent adhesion?

A. Yes, making a permanent adhesion.

Q. Now, you had in your autoclave then, when you closed it, about how many rubber bags, each containing a duplate sandwich?

A. Maybe forty or fifty—sixty.

Q. On racks?

A. On racks.

Q. So the water could circulate around them?

[fol. 330] A. The water could circulate around between the racks and the bags supported by the racks. Shall I proceed with the description of the autoclave?

Q. Yes, if you will, please.

A. A cycle of temperature and pressure was followed out which was found sufficient to make a sound adhesion between the plates of glass and the celluloid; after which time the temperature of the water was reduced, then finally drained out, the door opened, and the charge of bags and racks removed.

Q. Can you give me in a general way, not exactly, about the pressure and about the temperature that was employed in this autoclave sealing operation?

A. Approximately, pressure of 150 pounds; temperature of 250.

Q. One hundred and fifty pounds to the square inch?

A. Yes.

Q. And these bags on the racks were entirely immersed in the water?

A. Entirely so.

Q. What effect had that regarding the evenness of pressure around the sandwiches?

A. Well, your question is the break-down in the process. When the bag was evacuated, of course it drew down over the edges of the glass, and then with the added pressure that was put on in the autoclave a strain was set up along the edge of the sandwich in the bag, which extruded the celluloid at the edge more than it should be extruded, due to the bending of the plate glass. While the actual deflection of the edges of the plate glass is very slight, it is sufficient to extrude this pyralin or celluloid, yet at the same time with the cement employed adhering to it, so that when the pressure was taken off the product a strain was set up in the edge and the glass was constantly trying to relieve this strain by going back to its normal shape. This caused [fol. 331] the so-called let-go or edge separation already referred to, which was blamed onto poor cementation about which you asked, in the early stages of safety glass manufacture.

By Mr. Smith:

Q. Mr. Clause, this mechanical operation is not as clear to me as it is to you. I am not expert in this and I imagine the Master is more or less in the same shape, and I want to ask you a few questions to see if we can understand this matter. Now, take this autoclave. If it had been possible at that time, in 1928, to put your duplates, as they were, in a preliminary way, inside that autoclave, then raise the pressure of the water, would that make an even pressure of water upon the glass, without any bags in it at all?

A. Yes, sir.

Q. And raising the temperature of the water, would that have any effect also in helping the annealing process or combining process?

A. I don't believe I understand your question when you speak of annealing.

Q. When you exert pressure on two pieces of plate glass with a piece of celluloid between them, if you exert that pressure in warm water, does that tend to unite better than if you did it in a cold place, for example?

A. You have to have the heat.

Q. What does the heat do?

A. The heat causes the celluloid to become plastic.

Q. Then, by pumping more water into this autoclave all the time you kept raising the pressure inside all the time?

A. Yes, sir.

Q. And that squeezes these pieces of glass together?

A. Yes, sir.

[fol. 332] Q. On the warm celluloid, and tends to make them unite.

A. Yes, sir.

Q. That was what you were after?

A. Yes, sir.

Q. What did these rubber bags do that interfered with that process?

A. First of all, I think I should state that the present process used requires a preliminary pressure to keep the water or liquid or fluid out.

Q. That is your present process?

A. Yes.

Q. I am addressing my questions to the process in 1928. When you put these bags around the sheets of glass and put them in the autoclave and raised the pressure, how did that interfere with the uniting?

A. That prevented you from getting a hydrostatic pressure in the autoclave in which the reaction on the glass is uniform all over.

Q. I think you said a while ago the bags drew down over the ends of the glass. Is that right?

A. Yes, sir.

Q. Was that because the air went out of the bags? The air is out of the bag?

A. Yes, the air is out of the bag when you make this pressing.

Q. Let me ask a question. When you put your sheets of glass into one of these bags you pump the air out of the bag in some way? You exhaust the air so as to have no air interference with this process?

A. Yes, sir.

Q. How do you get the air out of the rubber bag?

A. The bags were constructed with a small nipple and valve onto which you attached a vacuum, a source of vacuum, and exhausted the air from it as you would exhaust air from anything where you wished to create a vacuum or partial vacuum.

[fol. 333] Q. You did this mechanically?

A. Yes, sir.

Q. When the air was out how did you keep it from getting back in?

A. Closed the valve.

Q. Was there a valve?

A. A valve and nipple.

Q. You have the glass inside the bag, the air exhausted, and the valve turned to keep the air out?

A. Yes, sir.

Q. And the bag in that shape was put into the autoclave?

A. Yes, sir.

Q. Will you explain to the Master what happened in any interference, if there was interference, by this bag with the proper pressing of those articles inside the autoclave? That is, I mean pressing them in such manner as would not create these let-gos. How did the bag interfere with that?

A. I think perhaps I may have to use a diagram to show you, but in words of course the bag has some resiliency or some resistance to bending; therefore, in being bent over the edges of the glass under this pressure it creates more pressure on the edge of the glass sandwich than is created over the general area of the plate.

Q. Did that have any effect on the union of the edges?

A. It has no effect on the union of the edges at the time but, as explained already, it extrudes more celluloid from the edge than you have throughout the plate. In other words, your average thickness of celluloid is a certain figure. Due to this added pressure on the edge at the time of pressing, the celluloid at the edge is then thinner than the average thickness of the celluloid. During the process [fol. 334] the glass adheres to that celluloid, even though it is bent down on the edges, so that when you relieve the pressure in the operation the glass again tends to become straightened out at the edges, and causes a strain, which causes a separation between the glass and the celluloid.

Q. May I make an illustration here to see if I understand it? Do I understand that extracting it your upper plate of glass would be something like that, bending down at the edge, and the lower plate bending up at the edge?

A. Yes, sir.

Q. That was due to the strain of these bags over the edges?

A. Yes, sir.

Q. You say the glass would unite although bent in that shape?

A. Yes, sir.

Q. When you take that finished product out of the autoclave with that bend in it what happened to the finished product when it went into use, let us say?

A. If it didn't let go before it left our factory, it would let go when it was out on the job or in the field in many cases.

Q. Do you use this rubber bag process at the present time?

A. No, sir; in the main, no. For very large sizes which we are not able to handle with our present operation we sometimes have to employ it, or for bent glass.

Q. Leaving out this drawing down at the edge of the glass trouble with the rubber bags, what trouble, if any, did you have with the rubber bags themselves?

A. Of course, the rubber bags would fail, let in moisture, and in every case where moisture gets into the bag the product within the bag comes out defective. The water would at times turn to steam or vapor and seep into the [fol. 335] edges of the product, turning the celluloid white, and you would not have a bond between the glass and the celluloid.

Q. Must you keep the water out from between the upper and lower plates of glass so as to make a merchantable product, when you have it in the autoclave I mean? Must you keep the water out from between the sheets of glass when it is in the autoclave?

A. Yes.

Q. If you don't keep it out from between the sheets of glass, what happens?

A. The product would come out defective, would not adhere; the water would turn the celluloid white—break it down, destroy it.

Q. You say these bags fail. What do you mean by failing?

A. Get a hole in them—pinhole.

Q. That would let water in?

A. Leak.

Q. If you expose rubber bags such as you were using to high pressure and high temperature, such as you were using, does that have any effect in destroying the quality of the rubber?

A. Very decided effect. The first bags we got from the rubber people would only make a few journeys—few trips—into the autoclave. Through co-operation with them we got bags that were fairly satisfactory from the standpoint of life, but nevertheless in the use of them they would develop a leak, which would have to be patched—repaired—just as you repair an inner tube in an automobile tire.

Q. Now, in your plant did you use the best inspection you could to see that you were using tight rubber bags and those of proper quality?

A. Knowing the effect of a leak on the product, I think every precaution was taken to prevent them.

Q. In spite of that, you did get leaks though?

[fol. 336] A. The sealing system, or the clamp which was used to seal the rubber envelope or bag at the end, was a crude affair and often-times the leak would occur there rather than through the actual rubber bag. I suppose twenty-five different types of clamps were developed to make an improvement on the crude one used, but up to the time we stopped using this system nothing was found better than the crude clamp we used.

Q. Did or did not the use of these rubber bags lead to numerous defective duplates?

A. I think I should explain that we at times put more than one sandwich in the bag to increase the production. To keep the plates of glass from slipping on the sheet of celluloid, paper stickers were used around the edges to keep them in position. Even the thickness of a piece of paper would cause many times sufficient excess pressure at that point to break the plate or start a vent, which of course is the same thing as a break.

Q. Supposing that book was the lower sheet of plate glass and this yellow tablet was the celluloid and this book was the upper sheet of plate glass, would you describe to the Master how you held those together so that you could slip them into these rubber bags?

A. Paper stickers were pasted around the edges.

By Mr. Christy:

Q. At intervals.

A. Yes, at intervals.

By Mr. Smith:

Q. Mucilage or what?

A. Mucilage—gum paper labels.

Q. And in that shape it was put inside the rubber bag? [fol. 337] A. Then the sandwich was placed in a piece of canvas and the whole sandwich, canvas and all, slipped into the bag.

Q. Now, in the spring of 1928 did you have any precedents to go by in this process of yours? Did you have any patterns to follow, or was this a new enterprise?

A. Well, the Pittsburgh Plate Glass Company had been carrying on development work in safety glass at the same time the du Pont Viscoloid Company carried on a similar development. Our early experience had been with presses which could produce one or more lights of safety glass at one pressing.

By Mr. Christy:

Q. Just like an ordinary letter press you mean?

A. Just like a letter press. The experience of the du Pont Viscoloid Company was with the rubber bag autoclave system. When the union of the two companies was made our experience was interchanged, and after weighing both systems we believed the rubber bag autoclave system the better of the two, and proceeded on that basis.

By Mr. Smith:

Q. Then you encountered all these troubles?

A. We encountered troubles when we went into production that we had not encountered when using that system on a more or less laboratory scale.

Q. Had there been any standard practice with respect to using glass in rubber bags in autoclave for the purpose of making laminated glass before this? Was there some history of the business that you knew about, or did you have to develop this thing?

A. The Saftee Glass Company at Philadelphia were using the autoclave glass system.

Q. How long had they been using it?

A. I think the Saftee Glass Company is the oldest company in the United States in the manufacture of safety [fol. 338] glass. Mr. Sherts, I think, could answer that question at some later time.

Q. Did you consider when you were developing this method of making safety glass that you were following in somebody else's footsteps, or were you blazing out a trail for yourselves—inventing a process?

A. We went into it on a very much larger scale than anything we knew of and the system of autoclave we used and the manner of handling the product and so forth was quite a departure, I think, from anything that had been done before, inasmuch as nobody had gone into the production on such a scale up to this time.

Q. How long did you use this system of rubber bags in the autoclave? I am not speaking now of isolated cases of large sizes but for your general commercial product. How long did you use that?

A. We used this system from the spring of 1928 until some time in the year 1929.

Q. And then, just in a few words, what different method did you adopt in 1929 for holding the sandwich together before it was introduced into the autoclave, after you gave up the rubber bags?

A. We used a preliminary press method, and that is what we employ today.

Q. What is that, briefly?

A. The two lights of glass with the light of celluloid between, after proper treatment with adhesive, are laid up and put into a press which gives it a very light pressure as compared to the system employed for the final pressing, or sufficient pressure to make a satisfactory safety glass, and only sufficient heat and pressure at this preliminary pressing is employed to make the glass adhere to the celluloid.

Q. Let me interrupt. You speak of heat. Do you also use heat in this preliminary pressure?

[fol. 339] A. Yes, sir.

Q. How is that? What do you call the members of the press—the leaves?

A. The top and bottom.

Q. Are the top and bottom heated?

A. The press is so designed that the heat can be applied to the two pressure surfaces.

Q. You put the sandwich in there and press it lightly with that heat?

A. Yes, sir.

Q. What does that do?

A. That causes the glass to unite with the celluloid.

Q. Does it unite sufficiently to keep out air and water?

A. A vacuum is applied at the time of heat and pressure and the air is evacuated from the surfaces of the glass and celluloid, and the heat and pressure are sufficient to make a sandwich, which to all intents and purposes to a layman would look like a finished article.

Q. At least it keeps out the air from between the plates and it also keeps the water out?

A. There is no water employed here.

Q. I say when you subsequently put it into water it keeps the water out?

A. The two pieces of glass and the celluloid in this preliminary pressing are completely united.

Q. But not sufficiently united to put them on the market as safety glass?

A. No, sir; from the standpoint of safety it is not a finished product.

Q. You take that sandwich which has been preliminarily pressed together, and you don't put that in the rubber bags, do you now?

A. No.

Q. Where do you put it?

[fol. 340] A. On a rack similar to the racks on which the bags were placed, and roll the whole rack into the autoclave, surround the whole rack, product and all, with a liquid, through which medium you can apply heat and pressure.

Q. Is there any secret about the liquid?

A. No.

Q. What is it?

A. Carbitol—most anything. We can use water.

Q. What do you use in practice?

A. We are using, I think, carbitol.

Q. Whatever it is you use, you put this liquid in the autoclave, the door of the autoclave is closed, and then you in some way increase the pressure in the liquid in the autoclave?

A. Yes, sir.

Q. How do you increase that pressure?

A. By pumps.

Q. You pump more liquid in?

A. Yes, we pump more liquid in.

Q. What does that do to the sandwich?

A. Completely presses it.

Q. Squeezes it tighter and tighter?

A. Yes, sir.

Q. Much tighter than it was when it came out of the preliminary press?

A. Yes, sir. It squeezes it to the pressure you apply.

Q. Is that higher than on the preliminary press?

A. Yes, sir. On the final pressing we employ practically the same pressure as we employed in the autoclave where the rubber bags were used.

Q. How much heat is on this liquid on the final pressure?

A. The same heats are used in this system as the old.

Q. What were they?

[fol. 341] A. About 150 pounds pressure and 250 degrees.

Q. How long do you keep one batch of sandwiches in the autoclave under this heat and pressure before you take them out and put a new batch in?

A. About eight minutes.

Q. It takes eight minutes to complete the process?

A. Depending on the pressure used. You complete the cycle.

Q. How does this method compare with your old rubber bag method as to the quality of the product?

A. Well, it is all the difference between success and failure.

Q. That is a fine general expression, but do you mean you don't have as many rejects?

A. The new process which we have just described does not create any strain on the edges. We therefore eliminate all rejections from the so-called let-go or edge separation. Coming in contact with nothing but a liquid, we have virtually no breakage whatever. I might say that the only breakage which occurs would occur from a piece of glass which in the cutting perhaps had a nick on the edge from which a vent might start.

Q. Now, that seems a little more clear to me.

A. I would like to add to that. On this subject of edge strains and let-gos—separations—some of the product manufactured from the beginning has had what is known as a seal around the edge of the product. This seal was supposed to prevent moisture from seeping into the edge of

the product and causing a let-go. I don't mean to say that safety glass subjected to moisture at the edges will not separate, but the practice as carried on from the beginning of this manufacture of safety glass where edge sealing was done relieved this edge strain, even at the time when none of us in the business knew anything about edge strain or knew that the edge strain was there. The Fisher Body Company did not like the appearance of this seal, which is [fol. 342] made by removing from the edge of the safety-glass celluloid to a depth of maybe an eighth of an inch into which black pitch or similar product is forced, because when a window of a car is lowered part way this black line was objectionable from their viewpoint, and particularly in the case of the windshield which they manufacture, known as the "V. V." type, ventilation is taken into the car by raising the windshield. So that if this seal was put into the windshield and the windshield then raised to permit ventilation, this black line appeared almost in front of the driver's eye.

Q. Do you mean that when you use pitch to seal the edges of the glass as a preliminary seal before it is finally pressed —do you mean that pitch makes a permanent black line on the finished product?

A. It is the last thing put into the product before it is shipped. After the product is manufactured the celluloid is dug out from the edge and then replaced with the pitch.

Q. I thought the pitch went in preliminarily.

A. No.

Q. And that leaves a permanent black line?

A. Yes, it leaves a permanent black line. Now, there is another point which I think should be well understood by everybody, which is important in the operation of a plant and has a great bearing on the losses you sustain. From the nature of the process described it is apparent that you take two pieces of glass and a piece of celluloid which are to begin with the size of the finished product, where you manufacture for an automobile account. The only reduction in size, if you can refer to it as a reduction, in this article is in the edging of the product, the grinding and polishing of the edges, which is required by the automobile manufacturers and removes a very insignificant amount of the product. In other words, it is only a dressing of the [fol. 343] edge to take off the sharp corners and make them

presentable. Therefore, anything looked upon as a defect in the finished product by the automobile manufacturer causes a complete loss of the light of safety glass, unless it can be cut down to another size which they have use for. In the case of the windshield, which under the process employed at this time was the hardest pattern to make, due to its shape and size, there was nothing to cut it down to except a rear light. This meant a loss of maybe 50 or 75 per cent. of the area of the original windshield besides the labor of cutting it down. It was also true at this particular time when we were manufacturing only for the Cadillac and La Salle the assortment of sizes for the windows of the car known as body lights was not great, and in many cases the rejection of a light of glass meant the complete loss of that feetage.

Q. Do you mean, Mr. Clause, when you put these sandwiches into the autoclave they had been cut to size, the size of the finished product you were producing?

A. Very accurately to size.

Q. In other words, if you were producing windshields, you didn't cut them out after you took the material out of the autoclave, but you cut them out to the proper size and put them into the au-oclave?

A. That is right.

Q. If one of these windshields would have a bubble or crack or let-go, would you frequently have to reject all the glass included in that windshield?

A. That was the cause of our high losses.

Q. Unless it was possible it was of such shape to cut it down to a smaller light?

A. That is right.

Q. Was that frequently the case or not?

A. Not as frequently as we would like it to have been.

[fol. 344] Q. That was because there were not many sizes of window glass used in the Cadillac and LaSalle cars at that time?

A. Yes, sir.

By the Master:

Q. Mr. Clause, you just said there when it was impossible to use a piece of glass for the windshield and you cut it down, it could only be cut and used as a rear light. You mean rear light of glass for the window?

A. Yes, the rear window.

Q. How close to the edge did this pyralin begin to diminish in size when you used the envelope system?

A. To answer your question I will have to do it in a rather indirect way. The let-gos that were caused by this strain in the edge, which would appear perhaps an hour after we took the glass out of the autoclave, or perhaps the next day after we thought we had something that was perfect, would extend in the main from about an eighth to a quarter of an inch. I would say an average of three-sixteenths. Some would be greater and some would be less, but I think perhaps that answers your question in rather a broad or general way. In other words, the actual bending of the glass is something I don't believe you can hardly measure with a micrometer. We first discovered it by using polarized light and detecting the strain in these edges, believing there was something that caused this separation around the edge.

Q. And could you not increase the size of your light sufficiently to take care of that?

Mr. Smith: Before you put it into the autoclave, you mean?

The Master: Yes, that is right.

A. We had that brilliant idea and we were going to make all safety glass an inch wider—that would be an inch wider [fol. 345] in cross sections each way—and we purchased, I believe, four or six saws which we developed ourselves, and we were going to run this product through these saws as you would lumber through a lumber mill, and take off a half inch on the sides, if they were square sides, and trust to luck on the curved side because we couldn't saw a curve, although we even went to the trouble to develop a saw that would make a curve to attack this very problem. It so happened just at the time we got the first of those four or six saws in operation that we discovered the new system of making the product where the edge strain is not developed.

Q. How long did your process with the use of the envelope take—about eight minutes?

A. It was a longer cycle.

Q. Longer cycle than that that you now use?

A. Yes. If I remember correctly, we had a cycle of about forty-five minutes from the time the glass was charged

until we could get it out again. The mass to be heated up and cooled down was greater and of course, due to the fact that the safety glass was surrounded by a rubber bag, which is a pretty good insulator, it took more time for the heat to filter into it, and I think perhaps we know more about it today than we did then, and to play safe we left the heat and pressure on longer than was necessary.

By Mr. Smith:

Q. Now, Mr. Clause, is it necessary to make these pieces of glass for automobiles, say windshield glass or glass for the windows, to an accurate size? Does the difference of an eighth or sixteenth of an inch make any material difference?

A. In some cases they reject it for a thirty-second.

Q. Why do they have to be so accurate? Are they fitted into anything?

A. The automobiles, of course, are an assembled product and all the articles, if they are purchased outside, have to [fol. 346] be very accurate. They undergo a very rigid inspection and when they receive them they don't want anything to happen to hold up the assembling of a body. To begin with, they fit into channels or frames, in the case of windshields we will say, and in the body lights they fit into channels. They must be free to roll up and down.

Q. Would an eighth of an inch difference be material in that use of the glass?

A. I would be glad if later on you could ask Mr. Sherts as to the accuracy that is required and the care which is taken to produce a product and have it received by the automobile manufacturers and have no rejections.

Q. You mean the difference of an eighth of an inch is a material thing?

A. It is the difference between accepting and rejecting that light.

Q. What difference would it make if your glass would be open on the edges—if your finished laminated glass were open on the edges an eighth to three-eighths of an inch?

A. It permits moisture from the air or rain, in case of an automobile in service, creeping into that edge.

Q. Does that hurt the celluloid?

A. That will cause the product to break down.

Q. Will it interfere with the visibility through the glass?

A. The chances are it would creep on up into the area of

the window or windshield of the car and the point become visible.

Q. Did your company originate in a commercial way this preliminary pressing of the sandwiches so as to eliminate the rubber bags in the autoclave?

A. Yes, sir.

Q. You pioneered in that?

[fol. 347] A. Yes, sir.

Q. You had to make your own experience?

A. Yes, sir.

Q. And I believe you proceeded by the process of trial and error? Is that the way a man does in a plant with a new process?

A. I think that is a good way to describe it.

Q. Now, as I understand it, this old process of yours with the rubber bags, while that was in vogue, you had a great deal of trouble with imperfect duplate. Is that so?

A. In addition to the defects which came through the rubber bag autoclave process, the surroundings in which we manufactured we know today were not satisfactory.

Q. Just a moment, Mr. Clause. Excuse me for trying to get this clear on the record. Before you go into that will you state whether or not you did have a great deal of trouble with your product while you were using the rubber bag system?

A. Yes, we did have.

Q. And a great deal of glass rejected?

A. A tremendous quantity.

Q. Through the reasons you have described?

A. Yes, sir.

Q. Will you proceed and tell us whether there was anything else in your operations to cause rejects of glass or cause your customers to return glass to you after you sold it to them?

A. The buildings in which we were operating, as described, were rather loose buildings; infiltration of air was present; grit could creep in; the buildings were dusty. Pyralin or celluloid is electrostatic, and a clean piece of pyralin subjected to unclean air at times becomes coated with particles of dust, lint, anything present in the air, and they are rather hard to get off because of static electricity.

[fol. 348] Q. Why do you have to get them off?

A. Well, if you put into a sandwich and pressed into the safety glass, they are decidedly noticeable, not only to the eye when it is subjected to daylight, but in a windshield, where light from another car strikes it, it creates an effect which is almost blinding. Your vision is cut down. There is diffusion of the light and it makes a defect which the automobile people will not accept. In character it is similar to what is known as haze in celluloid itself.

Q. Proceed.

A. The process of preparing the sandwich before pressing is one of washing the two lights of glass, cleaning this pyralin or celluloid, spraying the two lights of glass, and then laying up in the form of a sandwich preparatory to going into the pressing operation. In the surroundings in which we operated, although we thought we were taking all precautions, we found that the finished product was not free from dirt and we had many rejections from dirt being pressed into the product.

Q. Have you made any change so as to keep out dust in your present practice?

A. Our new buildings are modern in every respect, tight with regard to infiltration of air, and wherever cleanliness is necessary to prevent this defect from creeping into the product we actually use washed air in rooms where no one but the operators are permitted to enter. In the old plant we thought we were taking every precaution, and even went so far as to wearing uniforms on the people handling the product at this stage of the operation and insisted the boys wear caps so that hair might not fall onto the product. This defect, coupled with something like twenty-one defects which were discovered celluloid could carry, plus breakage, inexperience in handling, chipping, the defects in the autoclave system, and then the problem [fol. 349] we ran into of edging this product before shipping caused a loss that was astounding. The loss was so high that we were all alarmed, and the accumulation of rejected glass, to which we attached some value in the hopes that we could cut it down, became so extreme that we almost crowded ourselves out of the building in which we were operating and finally had to carry great quantities of the rejected product over to the Pittsburgh Plate Glass Works, No. 1 plant, and store it in areas available there.

Q. Now, Mr. Clause, in addition to what you have described, and leaving out the matter of the edging for the present, what about the location of the plant where you made duplate with reference to the warehouse where the finished material was placed prior to shipment?

A. Well, that was another condition which caused us a great deal of loss.

By the Master:

Q. I believe you testified that you built a second plant when the order from the Fisher Body people came in?

A. It was after the Fisher Body order was had and we found we were too cramped in the first building.

Q. Did you make any change at all in the construction of that plant with respect to the construction of your first plant?

A. No, it was the same type of plant.

By Mr. Christy:

Q. Let me ask a question. Aren't we confusing matters? You mean that when you found that you had to increase your productive capacity so greatly to fill these Fisher orders, you put an additional building on the first one in which you started?

A. That is correct.

[fol. 350] Q. You are not referring to the new plant which you built?

A. No. I would like to add it was something that had to be thrown up in the shortest possible time to take care of the rush we were in, and I think that building was completed and we were in it in sixty days. They are a very cheap type of building, and inasmuch as we knew and had already taken steps to erect a new building, we naturally didn't want to put any more investment in those than possible because in the end it had to go up——

By Mr. Smith:

Q. You had this old shed which you had rehabilitated for a plant to start with?

A. Yes, sir.

Q. Now, when you got the Fisher Body order for Cadillac and La Salle cars and so forth, did that require you to make an immediate addition to that plant?

A. We didn't make an addition to the plant until we found we were too cramped. We couldn't get the production out of the first building.

Q. When you found you were too cramped in the first building, what was the first step you took to relieve yourself?

A. Added to the building.

Q. That addition—what kind of addition was it?

A. The same type of construction.

Q. Did you have to build it rapidly?

A. Very.

Q. Why?

A. Because we were so cramped we were afraid we couldn't get the orders out to the Fisher Body Company.

Q. When you built your new plant, the plant you now use, where was that located with reference to the old plant?

[fol. 351] A. At the extreme end of the property adjacent to the shipping facilities of the Plate Glass Company. In other words, we located it in the most convenient place to pass glass into the Duplate Corporation's plant and in the event we wished to ship duplate from the plate glass plant we could take it back and ship it from there.

Q. The new building was built close to the Pittsburgh Plate Glass Company's warehouse?

A. Yes, sir.

Q. The old building was how far away?

A. A third of a mile or so.

Q. The new building—was it the same type of construction as the old building?

A. It was the best type of construction we could possibly build.

Q. Was it the same as the old?

A. No, sir.

Q. How did it differ?

A. This is a steel and brick, concrete building, tight in every respect, with all facilities for cleanliness, heat and so on.

Q. When did you begin to use that new building?

A. I would prefer to have that question referred to Mr. Sherts at a later time, if satisfactory.

Q. You don't remember the exact date?

A. No.

(Recess taken until two o'clock P. M.)

[fol. 352] Afternoon Session

ROBERT L. CLAUSE, resumes the stand.

Direct examination (continued).

By Mr. Smith:

Q. Mr. Clause, you were speaking about the inconvenient location of your first plant. I don't now refer to your modern plant, but the first plant you had for making duplate. How did you get the duplate, after it had been made in that factory, to the warehouse of the Plate Glass Company from which point it was to be shipped?

A. It was stocked onto racks, which at the glass plant you would call a glass buggy, and transported by electrical trucks similar to those employed by the stations for handling baggage, except that the platform is such it would go underneath the buggy and pick it up off its legs.

Q. These trucks were run by electric power, were they?

A. Electric battery trucks.

Q. Something like the truck you see running around the station where they haul trunks?

A. Quite similar except for their form of platform.

Q. When these trucks ran from your factory where the duplate was made to the warehouse what did they run on?

A. Well, within the duplate factory itself of course they ran on the concrete floor. The roadway from the duplate factory to the Works No. 1 of the Pittsburgh Plate Glass Company was a roadway made up of planks, and we had a railroad to cross, and in some cases they ran on the regular service road used by the automobiles in the plant.

[fol. 353] Q. Did you have to cross transversely this railroad track?

A. Yes, sir.

Q. Just one track or two?

A. One track I think.

Q. Well, what effect did this trucking have on the duplate?

A. The jostling received in transit was detrimental, even though we took precautions of putting paper and then corrugated paper between. Dirt, particles of sand, would settle down between it and cause scratches on the surface, and so on, and of course the jostling, if there was any tendency of the glass to bend—the nature of the cutting of the glass

prior to its lamination—the glass would bend; you would get breakage.

Q. Did you build up a wooden platform between the rails of the railroad track and outside the rails so as to make the crossing as smooth as you could?

A. Yes, sir.

Q. In spite of that, was there some jostling there?

A. There was bound to be when you crossed the rails.

Q. Did you have to cross the railroad tracks to get to the warehouse?

A. Yes, sir.

Q. No other way?

A. No other way.

Q. In your testimony this morning you spoke about these let-gos at the edge of the glass extending in how far?

A. From an eighth to a quarter of an inch.

Q. Now, suppose you finished a plate like that, let us say, which had an eighth of an inch let-go around the edge, would an automobile concern accept that?

[fol. 354] A. In the early stages, before they and before we knew what would take place, they did accept some of it. That eventually came back on us.

Q. You mean they were eventually returned?

A. They were eventually returned, yes.

Q. Why?

A. Because, even though that much let-go relieved this edge strain, it permitted the elements, when the light of glass was placed in an automobile, to get into the crevices between the celluloid and the glass and the defect would then grow.

Q. Suppose you had a glass in a windshield with an eighth of an inch let-go in the edge, and the automobile bearing that windshield was exposed to stormy weather where the rain would beat up against it and that sort of thing, would that have any effect on the windshield?

A. The presence of the water there would in time cause that let-go to grow up into the plate to the point where it would become objectionable to the eye, or, if let run long enough, would perhaps grow to the center of the plate.

Q. The water would beat against the windshield and run down and get into the channel and eventually get into this let-go place?

A. That is correct.

Q. And if the water got into that let-go, did that progressively destroy the celluloid?

A. Yes, sir.

Q. How far would that let-go grow into the windshield?

A. That might grow into the middle of the plate.

Q. Take the duplate sheets that you brought out of the autoclave that had a let-go of an eighth of an inch at the time they would not be accepted by the automobile manufacturers, if you would store those plates, would anything happen to them?

[fol. 355] A. The let-gos would even grow when stored in the duplate factory.

Q. How did you account for that, Mr. Clause?

A. Due to the natural moisture in the atmosphere.

Q. You mean they would extend further?

A. They might grow in and clear up into the center of the plate.

Mr. O'Shea: Mr. Smith, do you know this is already in the record?

Mr. Smith: I have read the record and it does not look anything like as good to me as this testimony.

Mr. O'Shea: This is just to bring it out clearly?

Mr. Smith: Yes, that is the purpose of it.

Q. How much was your production at this first plant of yours—I mean the first plant plus the annex to that plant—when you got into production, Mr. Clause?

A. We sprang from production of virtually nothing, as explained, to shipping four thousand lights of duplate a day.

Q. Four thousand lights a day?

A. Yes, sir.

Q. Well, would you have to produce at that time more than four thousand lights in the plant to have that many to ship?

A. We had to produce many more than that to ship four thousand which we were obliged to ship.

Q. Why would you have to produce many more?

A. Because of the defects which I have described causing the plates when finished to be rejected by the manufacturers.

Q. And did much of the glass you shipped to the automobile manufacturers at that time come back to you as returned and rejected by them?

[fol. 356] A. Yes, sir. The first glass they rejected before they put it into cars as not coming up to specifications, and secondly glass which went into cars and became defective and had to be replaced.

Q. That was part of the history of developing this new art I suppose?

A. Yes, sir.

Q. Now, there was an answer you gave this morning that I think I didn't understand entirely. It was this in substance: you said, "I do not say that safety glass subjected to moisture will not separate." You mean by "moisture" water, do you, or moisture from the air?

A. It might be moisture or water. Of course, it is water, but to be specific take the case of a windshield which is set in a rigid frame—the glass set in a rigid frame. It is put in there with felt or some like substance which will hold moisture, and in the presence of that much moisture, if unsealed, the glass will tend to let go.

Q. Did you mean to say then when you use your present process, which involves the preliminary pressing before the sandwiches go into the autoclave, that when those sandwiches were put into the autoclave the liquid inside the autoclave would get inside the sandwich or not?

A. Well, only to a very slight degree because the moisture that gets into that sandwich is taken in through the pyralin in a very slow way. In other words, you might compare it with water going through wood. It would go in very slowly.

Q. And the sandwich is in the autoclave only eight minutes, I believe?

A. A very short time.

Q. So would it or would it not have the liquid extend into it in a material degree?

[fol. 357] A. It has no detrimental effect in that length of time.

Q. It would not extend in materially?

A. No, sir.

Q. What is the liquid—water or what?

A. We are using carbitol.

Q. Does that hurt the celluloid?

A. No, it doesn't hurt the celluloid. It is known as a plasticizer.

* * * * * * *

Q. Now, what cutting did these block sizes which were delivered from the Plate Glass Company to the Pittsburgh Safety Glass Company require?

A. The block size, of course, was larger than the finished size of the light being made into safety glass, which represents the exact size which goes into the car, and a template of the finished article, having the contours and shape complete, was laid on the block size and a cutter employing a Red Devil wheel scores the glass and breaks off the excess area.

Q. Just what do you mean by "breaking off"?

A. Well, after glass is cut with a diamond or wheel, either with the fingers or pair of plyers you can cause it to snap down the line where it has been scored.

Q. Was that cutting operation to contour the same or different from the cutting operation commonly employed in your plate glass business?

A. It is quite different in this respect, Mr. Christy, up to this time we had not cut glass to contour except in rare cases.

Q. You mean the Plate Glass Company?

A. Yes, the Plate Glass Company. The automobile manufacturers have maintained their own cutting departments and edging departments. Years ago, when the automobile industry first started, at another plant we did cut to size [fol. 358] and edge glass for the automobile industry.

Q. That was plain sheet glass?

A. Plain, heavy——

Q. Polished plate glass?

A. Yes. Due to economies which they could effect, they have taken that business virtually away from us. Only in rare cases do we do cutting to size and edge work for the automobile plants, so the organization here was doing a new operation in the sense that it had to be very accurate to size.

Q. You spoke of vents? What do you mean by that?

A. A vent is a crack which starts from a chip or rough spot, caused when the glass is snapped and does not give a clean-cut edge.

Q. You mean it occurs in the cut edge?

A. It occurs starting at the cut edge.

Q. Speaking generally, when you organized this duplate cutting department, had you available cutters who were skilled in that work?

A. We had cutters to man our own factory, but had to take on other cutters to do the additional cutting.

Q. I mean cutting to contour.

A. We had men experienced in cutting, but I wouldn't say they were necessarily experienced in cutting to contour.

Q. Now, this is all in the record already, Mr. Clause, but in order to carry on the connected operation and to inform the Master, I will refer you to an exhibit already in the case—Defendant's Exhibit "A" used at the trial—which purports to be a diagram showing the assembling operation in your laminating plant. Do you recognize that as being substantially correct?

[fol. 359] A. Yes, diagrammatically that is very correct.

Q. And just to follow this through, at the extreme end of this conveyor on the diagram we have two sheets of glass of the contour of a windshield placed side by side. Is that correct?

A. Yes, sir.

Q. Now, what happens to them first?

A. They are first treated with pumice stone.

Q. In what way?

A. For the purpose of cleaning. Pumice stone is rubbed on those with a piece of felt in a moist condition.

Q. Then they pass to the point marked "2," still side by side. What happens there?

A. They are dried under this warm air pumice dryer.

Q. That is to dry the pumice?

A. To drive the moisture out of the pumice.

Q. Then they go to point "3"?

A. The pumice in a dried condition is brushed off with revolving brushes above the glass.

Q. And it is also sucked up through a hood?

A. A hood was over the brushes so the pumice in the

form of powder would be drawn off for the purpose of cleanliness.

Q. Then the sheets on the conveyors seem to pass through an opening or slot in the wall of a room which is called spraying and assembling room. Is that correct?

A. Yes, sir.

Q. Then what happens to them?

A. Then they were treated with the adhesive.

Q. And how was that done?

A. It was done with a spray which swept back and forth over the plates as they passed through this compartment where they were mounted.

[fol. 360] Q. You might call them swinging atomizers?

A. That is a good way.

Q. And that left a coating of moist gelatin on the surfaces of the plates?

A. Yes, sir.

Q. Did you always have the same number of atomizers, or was that changed from time to time?

A. I couldn't answer that question, Mr. Christy. At that point it was a matter of experimentation—development—to get the most uniform coating of cement on there that it was possible to put on.

Q. Then the plates, now coated with the gelatin solution, passed on to the point marked "5." What was there? Do you recall?

A. It was a very short distance from there on to the points where the plates were assembled, and between that point the gelatin had the excess water taken off.

Q. That is, it is called on this sketch "Warm Air Dryer." Is that correct?

A. Yes, sir.

Q. Then, to the right of the warm air dryer at point "5," and about in line with numeral "6," you have the words, "Assembled Plates." What happened there?

A. These two plates that started back here were put one upon the other after a sheet of pyralin or celluloid was put between them.

Q. That is, a sheet of pyralin was laid on one plate and the other was folded over on it?

A. Yes, the sheet of celluloid being already cut to size to match the plates in question.

Q. Then the assembled package passed out of the room to the point marked "Inspectors." What happened there?

A. The plate was picked up by these men——

[fol. 361] Q. That was the assembled plate?

A. Yes, sir. The assmbled sandwich was picked up by these inspectors and examined the best they could do to see if any dirt or defects of the various characters that have happened were in the plate before it went into the autoclave. At this point the inspector or man next to him put these gum labels around the edge to keep it from shifting or permitting any dirt to get in.

Q. To hold the sandwich together?

A. Yes, to hold the sandwich together.

Q. And after that the assembled plates went to the rubber bags, as you have already testified?

A. Yes, sir.

Q. I have here a blueprint which I will undertake to prove, which is marked as having been issued by the Fisher Body Corporation, and bears the date "4/30/28." Can you tell me what that print represents?

A. Well, that is a print of a windshield, giving the finished dimensions to which the finished article must conform.

Mr. Christy: I ask to have the print marked for Identification as Defendants' Master's Exhibit "D."

Q. Now, will you first describe, Mr. Clause, the operation of cutting that glass plate to contour?

A. The cutting of a plate to contour is done by means of a template, which is laid down on a block size of glass larger than the light of glass you want to finish with, and the man draws one of these Red Devil wheels around the template, scoring the glass around the periphery of the template. After that is done he is then able to crack the edges of the block size of glass away from the point where it is scored, leaving the remaining glass the size of the template, with allowances for the width of the cutter.

[fol. 362] Q. Those details, of course, I will bring out from the other witnesses but now I wish you would proceed and tell us what the edging operation was after you have the sandwich finished by pressure in the autoclave.

A. In the case of the windshield used by the Fisher Body Company, known as the "V. V." windshield, the light of

glass can be raised and lowered for ventilation, and to slide in the channels made for the purpose at the sides of the windshield the glass has to be smooth to permit the glass to slide in the channels. The bottom edge had to be ground and polished according to their specification, which called for a rounded edge. By rounded edge I mean an edge that would be half of a pencil. They call it a rounded pencil edge.

Q. Now, how was that rounded edge made?

A. The rounded edge is formed first in the rough by holding the windshield on its edge on a vertical sandstone wheel in which a groove has beeu cut the approximate contour of the edge which they wish to receive in the finished form. That takes off the rough of the glass. It is then followed up by putting that same edge on a smoothing wheel where a pumice stone is employed, also a vertical wheel but made out of wood, and that operation was then followed by one of polishing on a vertical rotating wheel where felt and rouge is employed. The felt is on the face of the wheel and rouge is poured on as the polishing agent.

Q. I can recognize there might be no great difficulty in making a straight edge in the way you have described, but I don't understand yet how you can get the rounded edge on the curved portion at the bottom of this windshield as shown on this print Exhibit "D." Can you let me have that a little more fully?

A. I would like to ask whether you are referring to the contour here or the rounded edge of the section of the contour?

[fol. 363] Q. I am referring to the rounded edge of the section of the contour.

A. Then I think I will have to repeat in part what I have already said, that the contour of the section is formed by the groove created in the sand wheel on which this edge is run. The smoothing and polishing operations are done on a softer wheel which will fit the contour of the section already originated by the first wheel.

Q. Had you any men experienced in this sort of work in the year 1928?

A. Not in the handling of safety glass. We had men who were skilled in the art of edging glass, such as plate glass for dresser tops, desk tops, and that sort of thing, where a similar edge is sometimes called for.

Q. I didn't know they had rounded edges. I thought they were always angular.

A. Some people call for a rounded edge.

Q. Do these dresser tops have these curved edges?

A. They might have.

Q. You are speaking there of edging a plain sheet of plate glass. Is there any difference between that operation and the edging of a combined laminated sheet like this duplate?

A. There is a very great difference from the standpoint of shrinkage during the operation.

Q. What do you mean by shrinkage?

A. Breakage. The problem of putting the polished edge on this contour was so extreme that we nearly had to give it up, and a man in charge of our edging department at another plant, to whom we sent the windshields when we fell down on this grinding and polishing job, devised a scheme of producing an edge which to all intents and purposes answered the requirements of the Fisher Body Company, looked like a ground and polished edge, but, as a [fol. 364] matter of fact, was not. It was what is known as a seamed edge. By rounding the two corners of that edge but not touching the bottom face, the two rounded edges when polished and viewed from the front have a lens action which causes the edge to look as though it had a pencil rounded edge, ground and polished complete. After the difficulty which we experienced in grinding and polishing this edge, and I think I had better explain why it was difficult or why the problem of grinding and polishing it became paramount at this point. In this "V. V." windshield the seal to keep out a driving rain is made by this ground and polished edge, which is visible when the windshield is open——

Q. You mean at the bottom?

A. At the bottom—seating itself upon a rubber strip in the body of the car at the base of the windshield frame. Unless the contour on the bottom edge of the windshield was virtually perfect, it would not seat itself sufficiently to keep out a driving rain. In the edging of that edge, as described, on a vertical wheel, it was almost impossible for a man to carry on the operation at a uniform rate, and if he ground longer on one point than he did on another, he would deviate from the contour to the point that the wind-

shield would not seat itself when placed in the car, and leakage would occur. After having many windshields rejected for this defect, the foreman in charge of another department in one of our other plants devised the scheme of so-called seaming this edge so that the original contour of the glass made by the cutter at the time of cutting the plate was retained, this edge being very much more accurate than anything that could be produced by a grinding. In addition to the problem of grinding and polishing this edge to the contour required, there was the problem of edging safety glass which is not present in edging ordinary plate glass. Being a product made up of two pieces of glass [fol. 365] in thickness 7/64ths of an inch, it is very subject to chipping, and the presence of the celluloid between the two pieces further complicates the operation. As the glass would wear away in the edging operation the celluloid had to be dealt with. It would gum up the wheel on which you were grinding the edge and cause what is known as firing, and as the result you would get chips along the edge which you were trying to grind and polish. Chips in this bottom edge, which we have referred to as being difficult to handle, were magnified by the lens action of these two edges put on by the seam and they shone like a diamond as you viewed them from the seat of the car. Defects as easily introduced and as simple as the one just described were responsible for a very high rejection on the part of the Fisher Body Company.

Q. Now, let us take this in steps. In the first place you say——

Mr. O'Shea: May I interrupt? Of course, Mr. Master, I don't know what this drawing is yet and, therefore, I reserve all objections as to the drawing and testimony pertaining thereto until we get a proof of the drawing.

Mr. Christy: As I said, I expect to prove the drawing.

Q. Now, taking these steps in sequence, you say first you tried to make what you would call a rounded edge like a half pencil at the base of this windshield?

A. Yes, sir.

Q. You found that so difficult that you went into an operation where you didn't touch the central portion of the sheet but ground the opposite faces at a slight angle?

A. That is correct.

Q. And you say that made chips and caused trouble?
[fol. 366] A. The edging operation in general causes chips, Mr. Christy—the seaming operation.
Q. I meant seaming operation.
A. The seaming operation relieved us of some of the difficulty we experienced in trying to put on the pencil edge. I mention that seaming because it was almost impossible to give the Fisher Body Corporation what they wanted, and only after much effort and many rejections did we develop this other scheme which permitted us to go ahead on any basis at all.
Q. And the seaming operation was the best you could do?
A. Yes, sir.
Q. And you continued that on this particular contour?
A. To the end. The experience I have mentioned in connection with edging safety glass has been experienced by all the manufacturers of safety glass.

Mr. O'Shea: I object to that as a conclusion of the witness and move to strike it out as to what the experience of the other manufacturers were.

Q. Just state what experience you had to base your statement as to the experience of the other manufacturers.

Mr. O'Shea: I object to that.

A. Through contact with other manufacturers and the employment of men who had worked in other manufacturing plants.
Q. Not what you observed yourself?
A. No.

Mr. O'Shea: Objected to and move to strike it out.
The Master: We will hear what the witness has to say.
[fol. 367] Mr. O'Shea: Exception.

A. (Continued.) My point in making that reference was for no other purpose than to state in the first stages this was a necessity. Today we have machines which have been perfected to overcome the difficulties in edging safety glass which we did not have available at the time safety glass was first produced in quantities.

By Mr. Smith:

Q. When was it first produced in quantities?

A. The first production of any safety glass in quantity was when we took on the Fisher Body Corporation.

Q. When was that?

A. That was in the summer of 1928.

By Mr. Christy:

Q. That is, as far as you know?

A. Yes, sir.

Q. State whether or not, assuming this blueprint, Exhibit "D," to have been properly proven, you were required to adhere to the exact dimensions which are shown on this.

A. We were required to adhere to those dimensions very, very closely.

Q. I notice on this print an arrow pointing to the corner of the windshield and the legend, "Sharp as possible." What does that mean?

A. In striking this arc across the bottom of this windshield you would arrive at a certain sharp point where it intersects the vertical line at the side of the windshield. What they wanted was to leave the shape of that point as near the original as possible. It had a bearing on the fit of this windshield on the seat already described.

Q. What bearing had that requirement upon the difficulties which you recited to Mr. Smith this morning of pressing these windshields in bags?

[fol. 368] A. Well, the corner of the windshield caused us the greatest trouble in the way of let-gos, because the action of the bag coming over the edge of the light of glass, as described this morning, was more acute when coming over a corner than when coming over a straight edge. The sharper the point the more extreme the pressure, the greater the extrusion of the celluloid, the more tendency to let go immediately following the pressing operation.

Q. If I have understood you, Mr. Clause, not only the windshields but the side lights of cars were given rounded edges as well. Is that correct?

A. Yes, sir.

Q. Why was that?

A. The automobile people require that all exposed edges be smoothly finished. The top edge of a door light or win-

dow of a car which raises and lowers must be ground and polished, and the two edges at the side where the glass travels in the channel must be smooth to slide in the channel.

Q. But why must the top edge be rounded?

A. I would think for two purposes: one to take the sharp edge off and the other to give it a good appearance.

By Mr. Smith:

Q. What would the sharp edge do if you left it on, Mr. Clause, and the window lights were lowered?

A. It would cut you.

Q. Cut your fingers?

A. Yes, sir.

Cross-examination.

By Mr. O'Shea:

* * * * * * *

Q. Now, you said you had this edging operation done by hand work, in the beginning, as I recall it, and for some [fol. 369] time after that, and it was this hand work which created most of the faults which subsequently resulted in defects?

Mr. Smith: I don't think he so testified.

Mr. O'Shea: I am asking him if he did.

Mr. Smith: You are incorporating that in your question. You are assuming an answer the witness did not make in my opinion.

Q. As I recall your testimony, Mr. Clause, you stated in the beginning you did this edge work by hand. Is that correct?

A. Yes, sir.

Q. And that it was this hand work that caused these astounding rejections?

Mr. Smith: Objected to as incompetent and irrelevant for the reason it incorporates in the question an assumption of a statement that the witness has not made.

Mr. O'Shea: I am asking him if he made it.

Mr. Smith: You should not incorporate an assumption of that kind.

Mr. O'Shea: I am not assuming anything. I am asking him if he so testified.

Q. I understood you to say that in the beginning of your operations the edging work was done by hand?

A. Yes, sir.

Q. And I understood you to further say that many of this astounding volume of rejections in the edging department were caused by this hand operation. Am I correct in that respect?

A. Yes, sir.

Q. When did you start the machine edging operation? [fol. 370] A. I don't believe I could supply you the exact date, but I don't think we had any automatic edging machines until probably 1929.

Q. What part of 1929?

A. Perhaps the early part of 1929.

Q. Would you call January the early part of 1929?

A. The first quarter, perhaps.

Q. That is, some time between January 1 and March 31st? Is that it?

A. I am giving that as the approximate time.

Q. Have you any records or data by which you could make it more specific?

A. I think Mr. Sherts could probably give you more specific information.

Q. Can you ask Mr. Sherts now?

A. Mr. Sherts believes we had our first automatic edging machine in the fall of 1928. That handled straight edges only and ground them only.

Q. And after you got those edging machines the losses in the edging department were substantially overcome? Is that correct?

A. No, sir.

Q. You still had large losses in the edging department?

A. Yes, sir.

Q. Then, were they as large as they were by the hand operation?

A. I could not answer without referring to records.

Q. Well, what was the purpose of putting in the machines? Was it to overcome these losses in the edging department, or something else?

A. The purpose of putting in the machines was to advance in the art of edging glass. There were edging machines for plate glass. The problem was to adapt them to the edging of safety glass.

Q. But they didn't help you out in your losses?

A. No, sir.

[fol. 371] Q. Caused by breakage and——

A. Not at the outstart.

Q. You still had the same relative large losses in the edging department caused by breakage in the edging operation that you had before, when you were operating by the hand process?

A. Yes, sir.

Q. Was the purpose of the machines solely to save labor?

A. I wouldn't say that, no.

Q. What other purpose than the saving of labor did it have?

A. The machine should put on a better edge than hand work and should do it with less breakage than hand work.

Q. I thought you said a little while ago there wasn't any less breakage, that you still had the same amount of breakage.

A. I said it should.

Q. But it didn't?

A. It did not.

Q. Did you have success in reducing these losses caused in the edging operation?

Mr. Christy: Mr. Master, I object to that question unless it is limited to the end of the accounting period.

Mr. O'Shea: All my questions are directed to the accounting period; nothing beyond that. I think much of the direct examination was directed to something beyond that, but my questions will be directed only to the period from January 1, 1928, to May 31, 1930, so with that understanding I repeat the question.

Q. Did you have success in reducing these large rejections in the edging operation during that period?

A. Very materially reduced them.

[fol. 372] Q. And how did you effect that reduction?

A. A great deal of it was brought about by the experience of the men. The same things that are the cause of many failures in the process today were also the cause of

many failu-es in the edging department. We sprang from a production of practically nothing to four thousand lights per day, had to expand and build in the edging department, bring in men who were more or less green in the edging game to handle a business of four thousand lights a day. Now, it is perfectly natural to start out on any such scheme with a green organization——

Mr. O'Shea: Let us not have an argument.

Mr. Smith: I think that is an answer to the question. He should be permitted to complete it, Mr. Master.

A. (Continued.) —with a green organization you are bound to have poor workmanship at the beginning which you would not have after a year or so operation. I will simply add that experience in any operation lends to perfection.

Q. I gather from your last answer when you were inexperienced in this business you had large losses in the edging department?

A. Yes, sir.

Q. And when you learned how to make this glass you materially reduced those losses?

A. Yes, sir.

Q. Now, Mr. Clause, you spoke of a time when you attained a production of four thousand lights per day?

A. Yes, sir.

Q. When did you attain that production?

A. Well, without referring to records which would show it, I imagine we were producing four thousand lights a day along in the latter part of August or September of 1928.

[fol. 373] Q. You were producing four thousand lights each day in September, 1928?

A. I say without referring to the records I can't tell you just when, but I know we got up to four thousand lights a day.

Q. Well, now, in the month of September, 1928, your books show total sales—total deliveries I suppose they mean—212,120 feet, 5 inches. That is for the month. How many lights would that amount to?

A. That would amount to some place between fifty and sixty-five thousand lights, depending on the feetage of the plate in question.

Q. Have you any idea what the feetage of the lights is?

A. I imagine it would be about three and one-half feet average.

Q. Each light would be three and one-half feet?

A. No, they would average that probably.

Q. So that you would have about 60,000 lights in that month, as I understand?

A. Yes, about 60,000 lights.

Q. Those were sales?

A. Yes, sir; shipments.

Q. Most of this business, of course, was done on an order business?

A. Yes, sir.

Q. You didn't stock? The character of the business was such you couldn't stock except to a very limited degree?

A. Limited amount.

Q. Now, in the cutting department, too, Mr. Clause—there we are speaking of cutting plain plate glass, are we not?

A. Yes, sir.

Q. The cutting department—that term as used on your books means the department where the single sheets of plate glass were cut? Is that right? I don't know whether [fol. 374] it is or not. We have spoken here of the cutting department as distinguished from the edging department?

A. That is the department where the plate glass was cut prior to lamination.

Q. The single sheets were cut?

A. Yes.

Q. There too your account shows large losses?

A. Yes, sir.

Q. And those were caused for what reasons?

A. There are several reasons entering into that. One that has no bearing on the question of actual breakage is that plate glass is sold in block sizes of even two inches. For instance, if you wanted a piece of glass that was 21 by 19, you would pay for a piece of glass, even though it came the size you asked, 22 by 20.

Q. Yes, I think that is pretty thoroughly covered in the testimony. Briefly it is this: whereby the customer paid for a bracket size glass, not for a specific size glass.

A. Yes, but there is one other point would have a direct bearing on this point.

Q. I just wanted you to know I think we all know the custom of this trade of the customer paying for a larger piece of glass than he actually gets.

Mr. Christy: I object to that. You give your own answer, please. We may have to modify Mr. O'Shea's statement somewhat later.

A. To be specific, in the cutting of this glass preparatory to laminating, you have got to have a fair margin to make the cut a direct and clean cut edge, and a clean-cut edge is essential to the operation so that you don't have vents start from the poor cutting. In other words, going back to the plate glass days when you cut glass to size you could use a pair of pliers and actually pinch the edge off where you [fol. 375] had only an eighth of an inch perhaps, or three-sixteenths or quarter of an inch to grip to cut it down to where it was scored. Such an edge resulting from that kind of pinching would not be satisfactory in the cutting of this glass to pattern where it went through this laminating process; otherwise, you would have more serious loss from the breakage of the finished article than the loss in the glass from the time you start. Therefore, if you took a light of glass—I will only take one dimension for example. For instance, the windshield, supposed to be 17⅞ or 17¾ inch light. You wouldn't start out with a block size eighteen inches. You would have to pay for the block size that was twenty inches because the quarter of an inch would not permit you to cut that to pattern and get a clean-cut edge. Therefore, it does not always result in every size but many sizes might have a very large percentage of loss which had no bearing on breakage whatever, to permit you to cut the pattern out of the block size. That was one item of loss. Then, the inexperience again, already referred to, was another item of loss in the cutting department. Those windshields which had the point on them are a very fragile article. When it gets down to seven-sixty-fourths of an inch the slightest touch of the man handling it, when he touches the table, snaps the corner, and the corner had to be sharp, not rounded as many windshields are called for today. In the transportation of this glass, still bearing in mind it was

seven sixty-fourths of an inch thick, that we have coming down to the plant——

Q. Let us keep to the cutting department, if I may make the suggestion.

A. I think in our bookkeeping arrangement the cutting department have assumed all loss until it was delivered down to the Duplate factory. In other words, they assumed all loss until it was delivered and ready to be examined down there preparatory to putting on the con-
[fol. 376] veyor. There was a large loss in transit of this glass going down there. It was an item that worried us extremely.

Q. Well, in these cutting department losses also, after your workmen got experienced, you again materially reduced the losses? Is that correct?

A. Yes, sir.

Q. And at what period in your production do you consider that you had experienced workmen?

A. I don't think we had really experienced workmen at the time we stopped producing for the Fisher Body Company.

Q. When was that, approximately?

A. I can't answer that.

Q. You were still producing for the Fisher Body Company in June, 1930, weren't you?

A. I can't answer whether we were or not. The records will show.

Q. Your books show shipments to the Fisher Body Company in May, 1930. It is true it is a relatively small amount, Mr. Clause.

A. That doesn't pertain to the large order then. That was division lights that we were able to make that apparently nobody else in the country could supply.

Q. And in September, 1929, your books show a delivery to Fisher of 100,000 feet. Would you call that a large order?

A. How many feet?

Q. 100,000.

A. In a month?

Q. In a month.

A. That is a fair order.

Q. Did you have experienced men by that time, do you think?

A. I will have to answer this way: relatively they were experienced as to the beginning, but as compared to our present efficiency, no.

[fol. 377] Q. So that up to September, 1929, your workmen had not yet obtained that degree of efficiency to keep down these losses?

A. No, sir.

Q. Now, with respect to the location of these respective plants of Duplate. You started in business and began sales approximately in January, 1928, did you not?

A. I think the company was formed between Christmas and New Year in 1927.

Q. Your records indicate sales in January and February, 1928, so that you were on the market selling to the public at that time?

A. Yes, sir.

Q. The glass that you were selling at that time was made in this first plant, as I understand?

A. Yes, sir.

Q. And that was located adjoining the Pittsburgh Plate Glass Company's plant?

A. Yes, sir.

Q. Immediately adjoining?

A. Yes, sir.

Q. Then, as I recall it, you expanded that plant some time later?

A. Made an addition to it.

Q. Do you know when?

A. In the summer of 1928.

Q. And then, some time in 1929, you discarded that plant and moved into an entirely new plant?

A. I think that was the very end of 1929.

Q. Now, I take it from an inspection of Defendants' Exhibit "C" for identification that some of the departments of Duplate were located within the Pittsburgh Plate Glass Company's plant?

A. Yes, sir.

Q. Noticeably, the cutting department?

A. Yes, sir.

[fol. 378] Q. The edging room and the packing room. Is that correct?

A. Yes, sir.

Q. Will you indicate on this Defendants' Exhibit "C" where the third plant or present plant of the Duplate Corporation is located?

A. It is located right down here. That may be there to indicate it. (Indicating.) It is the extreme left edge of the plan, Defendants' Exhibit "C" for identification.

Q. About how far away is that from the Pittsburgh Plate Glass plant?

A. I would say it was about 250 to 300 feet distant from the extreme left-hand end of the wareroom, and so located that we have passageway through a tunnel.

Q. Referring again to this Defendants' Exhibit "C" for identification, where was the glass belonging to Duplate Corporation stored before anything was done to it—plate glass?

A. You are referring to block sizes before any cutting was done?

Q. Yes.

A. It was stored here handy to the cutting department in the Duplate cutters department.

Q. And when it was stored there did it belong to Duplate Corporation or the Pittsburgh Plate Glass Company?

A. I think you would have to ask someone in the accounting department as to where the division was made in the wareroom of our plate glass factory.

Q. Well, it is testified to here already in the record that the system of purchasing glass was that an order slip would be sent to the Pittsburgh Plate Glass Company's factory. I assume from this exhibit that that testimony now really means that someone in the cutting department of Duplate [fol. 379] would send an order slip or something to somebody in the warehouse department of Pittsburgh Plate Glass Company and ask to have a certain footage, or a certain number of lights of block glass sent to the Duplate cutting department.

A. I believe that would be handled by the scheduling department of the Duplate Corporation.

Q. There wouldn't be much stored at the point marked Duplate Cutters Department on this Defendants' Exhibit "C," would there?

A. I would think not.

Q. In other words, the system would be that, since, because of the close proximity to the source, they would get it over to Duplate when and as they needed it within reason?

A. At times we carried a stock because of rush orders, but the stock would not be large. However, when we moved into the new building we then did carry quite a large stock of glass in the cutting department of that building.

Q. Then there was no large stock of glass in 1928?

A. I would say, broadly speaking, no.

Q. Now, I think you testified that owing to the distance and the conditions of the roadbed, particularly because they had to cross a railroad siding or track—in any event, that the jostling caused large breakage in the course of that transportation?

A. Yes, sir.

Q. Do you mean by that that you actually know that that large breakage was caused by that, or that you are assuming?

A. No, I actually saw it happen.

Q. And just what did you see happen?

A. Well, you would see when a truckload of glass was to be received down here at the Duplate factory, you would find these fragile windshields with a corner nipped off here, which is a loss of that plate from the standpoint of a Duplate windshield, or the glass would be scratched through [fol. 380] the fact one edge would rub on another to such an extent that you could not use it in the making up of a light of safety glass, which the term shrinkage covers in a way that breakage does not cover.

Q. Well, do you suppose that that breakage that you observed would amount in a particular month to 12,000 square feet?

Mr. Smith: Are you speaking now of breakage or shrinkage, as the witness testified? I object to the question. If this question is being put in the terms of shrinkage, I respectfully request the learned counsel to say so and not to confine it to breakage, which is part of shrinkage.

Q. Is there a difference between breakage and shrinkage?

A. Yes, sir.

Q. What is the difference?

A. In the glass industry we cover by the term shrinkage all defects in glass which cause it to be unusable. In other words, if you have a plate of glass and destroy the surface through a scratch, it is not broken, but from the standpoint of its usefulness it is shrinkage.

Q. There isn't much you can do in your raw stock to cause a shrinkage except either breakage or scratches, is there?

A. No, or bad bookkeeping—taking in and out of stock.

Q. I confess I don't know that. You mean you might have some losses in inventory?

A. Exactly.

Q. Going back now to the main question. We are referring now to breakage and scratches. Have you a positive knowledge that because of the defective manner of transportation that you have testified to that the glass so made [fol. 381] defective would amount in a month to 12,700 square feet?

A. I think that might be quite possible.

Q. How many carloads is that?

A. That is less than a carload.

Q. How much less?

A. A carload runs 15,000 feet or more.

Q. This thing is about 12/15ths or 4/5ths of a carload?

A. Yes, sir.

Q. And you think this transportation might cause as much as four-fifths of a carload in one month?

A. In the month we were discussing here some time ago, where you had 212,000 feet of duplate shipped, that means 425,000 feet of plate glass required to go into it. 12,000 feet on 425,000 feet isn't a terrific shrinkage.

Q. For breakage alone?

A. No, under the circumstances.

Q. Caused by this transportation?

A. Yes, sir.

Q. Have you answered my question that four-fifths of a carload in a month you wouldn't consider and did not consider as too much breakage and shrinkage because of this defective mode of transportation? Is that correct?

A. I don't like your question.

Mr. Smith: I object to your question as assuming that the method of transportation was defective, Mr. Master. We were doing the best we could with this new business.

Mr. O'Shea: I am assuming you were doing the best you could, but the witness testified the mode of transportation was such that it was one of the causes of what he refers to, or characterizes as astounding losses. I am asking him [fol. 382] whether he thinks this mode of transportation was not unusual.

Mr. Smith: The objection I offered was to your question in assuming that the method of transportation was defective. If, in this new industry and with these buildings located as they were, they were doing the best they could, I think it is not fair to insert in your question "defective transportation."

Mr. O'Shea: I don't want to do anything unfair, so I will put the question this way:

Q. Do you consider that a loss of 12,700 square feet of plate glass in a month was caused by your mode of transportation from one department of the Duplate Corporation to another department?

Mr. Smith: I object to the question as not properly laying a basis for a comparison or measuring of this loss unless it be shown, in addition to the number of feet lost, how many feet were handled or transported in this fashion. Do your books show that?

Mr. O'Shea: They are not my books. I am cross-examining. I don't have to lay any basis for my questions. You have laid the basis for my questions.

Mr. Smith: I think you should not put a question to the witness that is misleading in its effect, although it is not so intended I grant.

The Master: Answer the question, Mr. Clause, and we will determine later as to its materiality.

Q. (The previous question was read.)

A. Yes.

[fol. 383] Q. There is another item in another month of 118,200 square feet loss, which is designated on your books "Stock Loss."

Mr. Smith: I object to the question for the reason that the witness is not qualified to testify as to the books showing of the defendant's operation. He was called as a chief executive in charge of manufacture. He should not be cross-examined as to details of accounts. The question is objected to as improper cross-examination.

Mr. O'Shea: I am simply asking him if he thinks that mode of transportation would cause a loss of 118,000 square feet a month. That is perfectly proper cross-examination on his statement that your mode of transportation caused astounding losses.

(Question withdrawn.)

Q. Mr. Clause, do you think the mode of transportation from the cutting department to the next successive department in Duplate's process could cause a scratching or breaking of your raw glass to the extent of 118,000 square feet in a single month?

A. The breakage is a relative thing. I think to answer that, to be honest whether I thought so or not, I would have to know how much glass was transported.

Q. You couldn't answer that without knowing how much was transported? Is that your answer?

A. If I understood your question correctly.

Q. Well, is there any possibility that you misunderstood the question?

A. I don't think so.

Q. Would there be any connection between your shipments in a month and your deliveries from the cutting department to the next successive department?

A. There ought to be a pretty close relation.

[fol. 384] Q. Assuming in my previous question that you only delivered to customers in that month 77,800 square feet, do you understand my question now, Mr. Clause, fully and completely?

A. I would like to have the question repeated.

Q. Do you consider the particular mode of transportation from the cutting department of plate glass to the next successive department would cause a scratching or breaking of the plate glass to the extent of 118,200 square feet, and assume further that in that month you sold to customers 77,840 square feet of laminated glass, which of course would be 154,000 square feet of plate glass?

A. No, sir.

Q. You think that couldn't be possible?

A. No, sir.

Q. If it did happen, you, as manager of operations, what would you do?

A. I would investigate at once.

Q. What else would you do if you found it did happen?

Mr. Smith: I don't think we need go that far. Do you mean he would discharge someone? That is of no consequence in this case.

The Master: What are you getting at?

Mr. O'Shea: Why, if that be the case, they permitted it to continue for a period of two and a half years.

Mr. Smith: I object to that question as incompetent and irrelevant, being wholly immaterial what the witness would do if he discovered there would be unusual losses. I further object to the question because it incorporates statements of fact which are wholly opposite from the testimony.

[fol. 385] Mr. O'Shea: I say it incorporates a statement of fact which is in the record.

The Master: Answer the question, Mr. Clause, and I will decide later.

Q. (Question read.)

A. Why I think we would make a thorough investigation and depending on the facts disclosed we would act accordingly.

Q. Even to the extent of changing your mode of transportation, wouldn't you?

A. Yes, sir.

Q. Now, getting up to the pressing department, Mr. Clause. In the beginning you operated with this rubber bag process, as I recall it?

A. Yes, sir.

Q. And thereafter you went to the autoclave process?

A. They are both autoclave processes.

Q. One is where the rubber bag is put into the autoclave and the other is where the naked laminated glass is put into the autoclave? One where the rubber bag enclosing the laminated glass is put into the autoclave and the improved process is where the naked laminated glass is put into the autoclave?

A. Yes, sir.

Q. Let us call one the rubber bag process and the other the autoclave process, unless you have some better terminology for the distinction.

A. That is all right.

Mr. Christy: I would suggest you call the second the preliminary pressing process.

Q. Now, in the rubber bag process how long did you keep that up in your factory?

A. How long did we employ the process?

Q. Yes.

A. We employed the process up to and including a short time after we moved into the new plant.

[fol. 386] Q. What would you consider a short time? Was that a month?

A. I think we changed some time in the first quarter of the year when we moved in there.

Mr. Smith: Mr. Sherts will be on the stand and you can question him about that.

Q. Well, in the first quarter of 1929. Is that it?

A. No, we didn't move into the new plant the first quarter of 1929.

Q. How long did you keep the rubber bag process in operation in your plant?

A. Some time in the first quarter of the year 1930, I think.

Q. And after that you put the preliminary pressing process into operation?

A. Yes, sir. The preliminary pressing process was working in part, however, during the last end of the rubber bag process.

Q. And by the preliminary pressing process you again effected a substantial decrease in these rejections and so forth?

A. Yes, sir.

Q. Mainly due, as I recall your testimony, because of the defect in the rubber bag process of the edge over pressure, which resulted in a let-go in the final product?

A. Yes, sir.

Q. Now, did you state that the Cadillac people particularly objected to the pitch method of sealing the edges of these windshields?

A. Yes, sir. I didn't state they objected to the edge sealing. They objected to the appearance of it.

Q. I say one of their objections was directed to the sealing effected by the pitch process of sealing because it came in the line of vision when it was raised?

[fol. 387] A. Yes, sir.

Q. And that objection was caused because of the black line produced by this pitch process of sealing?

A. Yes, sir.

Q. Now, in the latter part didn't you sell to the Cadillac and La Salle sealed windshields that had a black line at the bottom?

A. No, sir.

Q. You never sold any of those?

A. No, sir.

Q. Or to Chrysler?

A. Not during that period.

Q. Or to any other manufacturer?

A. We are now selling some sealed and some unsealed glass, but during the time we are discussing here we sealed no glass.

Q. The objection which the manufacturers had to that black line was withdrawn?

A. Not in all cases.

Q. In some cases?

A. Yes, in some cases.

Q. This sealing process has the effect of decreasing the come-away of the two pieces of glass, has it not? That is its purpose?

A. Yes.

Q. And you didn't put that into your process for some time after you began?

A. We didn't start to put it in until the latter part of last year.

Q. Only the latter part of last year?

A. Yes, sir.

Q. Most of the other manufacturers of laminated glass were using this sealing process, weren't they?

A. Yes, sir.

Q. All during this period 1928, 1929 and 1930?

A. Yes, sir.

[fol. 388] Q. Did you have any particular reason for not adopting it other than this one objection from Cadillac and La Salle?

A. We sincerely believed ourselves it was not necessary if the product was made properly.

Q. But you finally came to the conclusion it might have a good effect?

A. Where glass is installed in a frame, where it is subject to moisture at all times.

Q. And you adopted the sealing in your process only recently?

A. The latter part of 1931, and only on part of our product.

Q. Mr. Clause, when did you obtain your first Fisher Body order?

A. I think we started into production—when we actually obtained the order I couldn't give you the date, but I think we started into production on that order about April or May of 1928.

Q. So that you were soliciting them for business prior to that time I assume?

A. That must be so.

Q. I think you also stated in your direct examination that some time in or about the spring of 1928 you induced the Fisher Body Company to adopt duplate as standard equipment. Am I correct in that statement of yours?

A. Yes.

Q. Will you please tell us what the inducements were that you offered to Fisher Body Company.

Mr. Christy: I object to that as improper cross-examination, your Honor. This witness has not been examined as having anything to do with the sales department.

Mr. O'Shea: He testified that they induced Fisher to adopt this as standard equipment.

[fol. 389] The Master: Objection sustained.

Mr. O'Shea: Exception.

Q. Now, you were familiar, were you not, from your reports from your factory superintendents and so forth as to your costs of making laminated glass during all of this period?

A. Yes, sir.

Q. You knew what your costs were?

A. Yes, sir.

Q. Were you in communication with Mr. Fisher and Mr. Judson during this period?

A. I wasn't in communication with Mr. Fisher.

Q. I mean Mr. Higgins, the vice-president.

A. Yes, sir.

Q. And Mr. Judson?

A. Yes, sir.

Q. Mr. Higgins was an officer of Duplate Corporation as well as an officer of Pittsburgh Plate Glass Company?

A. Yes, sir.

Q. And you were an officer of both companies also?

A. Yes, sir.

Q. Who made the selling prices, do you know?

A. I judge Mr. Higgins did.

Q. Did you have any conversations with him with respect to these selling prices of this product?

A. Not at the time he went to the Fishers.

Q. At any time during this period from January, 1928, to May 31, 1930?

A. No doubt I did.

Q. Did you tell him what your costs were in those conversations?

A. I think he was as familiar with those costs as I am.

Q. You mean he got reports through you or——

A. Direct.

[fol. 390] Q. Knowing what the costs were during all this time?

A. Yes, sir.

Q. Did you tell him about these astounding losses?

A. We were all familiar with those.

Q. You were all familiar with them?

A. Yes, sir.

Q. Are you familiar with the fact that you had losses upon examination of raw pyralin to the extent in some months of 44,000 square feet and 53,900 square feet?

A. I will have to ask you what you mean by losses. Are these stock losses or are they losses that had to be thrown aside as not satisfactory to be used in the product we were making?

Q. Well, at the risk of having my statement to you objected to, I will tell you that your Schedule "J" indicates that in the month of August, 1929, there was a loss in pyralin to the extent of 44,000 square feet, which is called in Schedule "J" shrinkage, and another loss in the succeeding month of September, 1929, of 53,900 square feet, which is called in Schedule "J", "Loss Examining."

(Above question read as follows: Are you familiar with the fact that you had losses upon examination of raw pyralin to the extent in some months of 44,000 square feet and 53,900 square feet?)

A. Yes, sir.

Q. Well, do you know what those losses were occasioned by?

A. Well, I think I know.

Q. Don't let us have it if you only think it. You either know it or don't know it.

Mr. Smith: He is entitled to give his opinion if you want it. That is all he can give.

[fol. 391] Mr. O'Shea: I am asking if he knows what caused the losses; not what he thinks caused the losses.

Q. You think you know?

A. Yes, sir.

Q. All right, tell us.

A. We thought the safety glass game was going to be a good deal larger than it was, and to be prepared we ordered tremendous quantities of pyralin from the du Pont Viscoloid Company because it looked as though they were not going to be able to supply us. In fact, there was so much pressure brought upon the du Pont Viscoloid Company to increase their output of pyralin that we had very unpleasant sessions. So, as the result, and to safeguard ourselves we ordered pyralin in stock sheets of 20 x 50 inches, which when applied to the orders we received from the automobile companies may or may not cut up to good advantage. We obligated ourselves to take this. They produced it. We obligated ourselves to take it and once having it, we had to use it. It was about this time, I think, that the change in sizes or the business fell off, so we felt we had to go in and use that pyralin up before it deteriorated, and applying the sizes of duplate we had to make from those stock sheets we sustained a very material loss.

Q. Du Pont was a co-organization with your company—with the Pittsburgh Plate Glass Company and Duplate Corporation, was it not?

A. Yes, sir.

Q. Had a fifty per cent interest?

A. Yes, sir.

Q. Granted special prices to its quasi subsidiary, Duplate Corporation?

A. I don't know what consideration was given in that respect, but something I believe.

[fol. 392] Q. This laminated glass business wasn't a new business in January, 1928, was it?

A. Wasn't a new business?

Q. Yes.

A. No; no, sir.

Q. The Safetee Glass Company of Philadelphia had been making laminated glass for a good many years, had it not?

A. Yes, sir.

Q. The plaintiff in this case had been in the laminated glass business for a period of two years before 1928?

A. Something like that.

Q. Some considerable period?

A. Yes, sir.

Q. You had been selling glass to the plaintiff in this case during that period from 1926 up to 1928, had you not?

A. Yes, sir.

Q. And the du Pont people had been selling pyralin celluloid or pyralin, to both the Saftee Glass Company over a long period of years and to the Duplate Corporation over a period of time after they went into the business?

A. I know they sold us.

Q. You don't know whether they sold anybody else?

A. No, sir.

Q. Mr. Sherts never told you——

Mr. Smith: Objected to as incompetent and irrelevant and not proper cross-examination.

The Master: Objection sustained.

Mr. O'Shea: Exception.

Q. Did you ever have any conversation with Mr. Sherts as to whether the du Pont people ever sold pyralin to Saftee and Triplex?

[fol. 393] Mr. Smith: Objected to as incompetent and irrelevant and not proper cross-examination.

The Master: Objection sustained.

Mr. O'Shea: Exception.

Redirect examination.

By Mr. Smith:

Q. Mr. Clause, I refer to Defendant's Master Exhibit "D", being the print which I understand shows a windshield. As I understood it, you were using that print for the purpose of illustrating to the Master the difficulties in making this windshield. Is that correct?

A. Yes, sir.

Q. Would it make any difference at all in the use of that illustration whether the illustration as drawn in this exhibit were a safety glass or a plate glass?

A. None whatever.

Q. And would your testimony be in any way changed if it should appear that this exhibit was a copy of a plate glass windshield instead of a copy of a laminated glass windshield?

A. No, sir.

Q. And did you or did you not—the Duplate Corporation—furnish to some of your customers windshields which were cut in substantially the same manner shown by this Defendants' Exhibit "D"?

A. We did.

Q. Now, I want you to be very brief about this to enlighten my ignorance upon another point, because I am not an expert on this. We will suppose this yellow paper on this scratch pad is a plate of laminated glass.

A. Yes, sir.

Q. And we will assume that you wanted to cut out a windshield from that plate of the dimensions which I have [fol. 394] sketched on there in pencil. Now, I have endeavored to leave a margin of a couple of inches around here between the edge of the windshield and the outside edge of the glass. I think you said that in cutting plate glass you could operate by leaving a margin of only a quarter of an inch or half an inch around the edge of the sides of the windshield?

A. Yes, sir.

Q. Why couldn't you do the same thing with this laminated glass?

A. Because if you cut a piece of plate glass with a very small margin around it, you have to use a pair of pincers to nip the glass off up to the point where it is scored, and in doing that you form a ragged edge. In employing glass for the purpose of making safety glass, it is essential you have clean-cut edges all the way around. Other than a clean-cut edge will be the cause of a vent starting in the operation.

Q. Now, on this little model I have made here the lead pencil line would indicate the line that was scored by your diamond tool, or whatever you used?

A. Yes, sir.

Q. In your practice when you used pincers to break off the selvage on the outside, was that satisfactory or not with laminated glass?

A. The thickness of glass used in laminated glass you don't have to use pincers. You can use your fingers it is so thin, but you must have sufficient margin to get the leverage to make a clean break.

Q. Supposing there was a margin of only a quarter or half an inch around the outside of this windshield, could a man break it off with his fingers without leaving slivers around the edge?

A. He might use a pair of plyers on a quarter of an inch to get it cut off.

Q. If he used pincers on a quarter of an inch selvage, would that or would it not mean fractures along the edge? [fol. 395] A. With skilled men they might; unskilled men could not.

Q. Did your men at this time have the skill to do that?

A. No.

Q. How much of an edge did they require in your opinion?

A. I think we allowed an inch at all times.

Q. Do you think you needed that much?

A. Experience since that has proved we did not.

Q. At that time and with that skill, did you need that?

A. I think we did.

Q. And by that method you would lose this inch of glass broken off around the edge?

A. Yes, sir.

Q. State whether you think there was less loss losing that dimension of glass than you would have had with fractures around the edge with lower margin.

A. We took every precaution we could because the loss in duplate when you get a sandwich of two lights of glass and celluloid is a complete loss. The loss in glass at this point is not nearly as serious as the loss in a finished article.

Q. Therefore, as I understand, you thought your method at that time, with the skill of the men, was a proper method?

A. Yes, sir.

Q. Leaving this size margin?

A. Yes, sir.

Q. And it was more economical than leaving a narrower margin, was it?

A. Yes, sir.

Recross-examination.

By Mr. O'Shea:

Q. The mere fact of breaking this selvage off around here didn't occasion you any loss, did it, for the reason that the [fol. 396] customer paid for the size depicted on the outside, that being the bracket which the customer paid for and you cut it down to a lower bracket?

A. I think I explained that before, saying it might or might not. For instance, if the customer's finished piece of duplate, we will say, was seventeen and seven-eighths or seventeen and one-half, that could not be cut out of an eighteen-inch bracket. Therefore, you had to start out with a twenty-inch bracket.

Q. And if you did, the customer paid for a twenty-inch bracket?

A. No, the customer paid for an eighteen-inch bracket.

Q. That is a very extreme case?

A. I admitted——

Q. In most of the cases, except those extreme cases, the customer paid for the bracket which included the selvage?

A. Yes, sir.

By Mr. Christy:

Q. Mr. O'Shea says that was an extreme case. Is that strictly true?

A. I don't know that was an extreme case.

By Mr. O'Shea:

Q. I wasn't addressing myself to the question of whether there was any loss as between your company and your customer in what the company was paid for the glass. I was talking about the loss, as an economical manufacturing operation, of having to take off these wide edges, and I understood you testified correctly on that subject. If you could have used a smaller selvage, we will say, around these windshields that you were cutting down, that would have

made a more economical operation because there would have been less glass broken off?

A. Yes, sir.

[fol. 397] Q. I mean economical in the sense of what glass you were using and if it were possible to do that, you could have passed that on to your customer?

A. Yes, sir.

Q. Furthermore, if you broke off one of these edges where you didn't leave enough margin for breaking, and you cracked your plate of glass, what would be the result of that?

A. You would have to cut the remaining piece of glass down to the next largest size you could use.

By Mr. Christy:

Q. Refer again to this blueprint marked for identification as Defendants' Exhibit "D," which has written on it, "Block size, 16 x 46." The actual dimensions, the largest dimensions, are 45 17/32 by 15⅛. Does that mean that the customer is to be charged for a block size of 16 by 46, according to that blueprint?

A. Yes, sir.

Q. Now, in cutting glass for duplate could you cut as close to that block as that?

A. We could today.

Q. Could you at that time in 1928?

A. I don't think we did.

Q. But you could only charge your customer 16 by 46? Is that right?

A. Yes, sir.

By Mr. O'Shea:

Q. Well, do you know, Mr. Clause, whether you did cut, at the time of this accounting, out of those block sizes and charge the customer for them?

A. I would have to honestly say no. You would have to talk to the man from the cutting room.

(Adjournment taken until Thursday, January 28, 1932, at 10:30 o'clock A. M.)

[fol. 398] Thursday, January 28, 1932.

Met pursuant to adjournment.
Counsel present as before.

J. H. SHERTS, a witness produced on behalf of the defendants, having been duly sworn, testified as follows:

Direct examination.

By Mr. Smith:

Q. Mr. Sherts, where were you born?
A. Lancaster County, Pennsylvania.
Q. And where did you get your education?
A. At Franklin-Marshall College, Lancaster.
Q. Prior to that I suppose you went through the common schools?
A. Through the common schools and Millersville State Normal School, Pa.
Q. Franklin-Marshall College is in Psnnsylvania?
A. Lancaster, Pennsylvania.
Q. Did you graduate there?
A. I did.
Q. In what year?
A. 1915.
Q. What course did you take at Franklin-Marshall?
A. Scientific course, majoring in chemistry?
Q. What degree did you receive on graduation?
A. Ph. B.
Q. Meaning?
A. Bachelor of philosophy.
Q. After leaving college did you go to work for the du Pont people or at least some time after leaving?
[fol. 399] A. Taught school one year and then joined the du Pont Company in 1916.
Q. At what plant of the du Pont Company?
A. The du Pont Powder Plant Company, Carney's Point, New Jersey.
Q. How long did you work for the du Pont Company before you became an employee of the du Pont Viscoloid Company?
A. From June 10, 1916, to February, 1919.

Q. Where did you go in February, 1919?

A. I was transferred to the Pyralin Plant of the du Pont Company at Arlington, New Jersey, which was later called the du Pont Viscoloid Company.

Q. And what practical experience did you have, just in general, not in detail, while working for the du Pont Company before you came to Pittsburgh?

A. In the powder plant I was a general chemist; first did routine work on analyzing powder and ingredients going into its manufacture; later was put in charge of their general analytical room, and after that was put in charge of installation and starting of three water filter plants. About that time I was transferred to Arlington.

Q. In the installation of these filter plants did you have any experience out on the ground?

A. That was altogether out on the ground. For approximately a year we had the problem of about five different sources of water, each requiring different kinds of treatment and equipment as they were used for different purposes, and that kept me out on the plant continuously, as the plant was about three miles long and the filtering plants were distributed.

Q. Was this filter station used by the du Pont plants?

A. It was.

Q. I mean you were looking after an installation for the company itself?

[fol. 400] A. Yes.

Q. When you went to the Pyralin Plant at Arlington, what were your duties there, briefly?

A. I was put in the color laboratory where we made the various colors and developed the formulas and made all the new kinds of celluloid, and in order to do that my first experience was approximately six months of actual operation on the plant. During that time I took the part of a laborer and worked on every operation from the beginning of the manufacture, including the acid, the alcohol, camphor, refinery, rolling, caking, pressing, cementing, sheeting—every operation of a manual nature through the plant.

Q. That plant was producing pyralin?

A. Yes, sir.

Q. The same kind of stuff that was later used in making this laminated glass?

A. Yes, that is correct. After doing that work, I was made manager of the industrial research division, the duties of which were to solve problems of manufacturing nature and to improve the qualities of our present product and extend its uses in the field, and at that time I had about twelve technical men constantly at work in various parts of the plant, including the articles division, on practically every phase of mechanical, chemical development, including efficiency.

Q. These twelve men were working under your orders?

A. Yes, sir.

Q. In doing that work did you stay in the office, if I may use that expression, or did you work out in the plant as well as the office?

A. We had an office for the records, but all the work was done in the plant, so I would say 90 per cent. of my time was out with the men right on the problem.

[fol. 401] Q. And seeing the actual goods produced?

A. Yes, sir.

Q. When did you come to Pittsburgh?

A. I came first in December, 1927, to discuss the problem of manufacturing safety glass in a general way, and was transferred officially as of February 1, 1928. During January I made several trips to consult on the problems of starting a new factory.

Q. Up until January, 1928, and for some time thereafter you were still in the employ of the du Pont Viscoloid Company?

A. That is correct.

Q. Now, do you live in Pittsburgh?

A. I live in Brackenridge, Pennsylvania, which is about two and a half miles from Creighton where the Duplate factory is located.

Q. You first came to Pittsburgh in connection with this safety glass business in the latter part of 1927, was it?

A. That is correct.

Q. And what did you do then?

A. At that time we had a meeting in the city office where I related to the Pittsburgh Plate Glass officials and technical men, experience I had had in connection with the manufacture of laminated glass, as we had done a considerable amount of experimenting at Arlington in our industrial research division. I had one and sometimes two men

working on this problem practically all of their time for some time before I was called out here.

Q. You need not give the detail of that conversation but it was looking toward the establishment of this plant in which the du Pont Viscoloid Company and the Pittsburgh Plate Glass Company were joint owners on the basis of 50 per cent. each?

A. That is correct.

[fol. 402] Q. Then did you subsequently enter that plant of the Pittsburgh Safety Glass Company, I believe it was called?

A. I did.

Q. When did you enter the plant?

A. On February 1st.

Q. What year?

A. 1928.

Q. Mr. Sherts, I show you a photograph in which one of the most prominent objects is what looks like a cylinder standing on its end.

A. Yes, sir.

Q. Will you please tell the Master what room that photograph shows, and whether it shows it correctly, and what these devices that are seen here are? I don't mean all of them, but I want you to point out the autoclave and press and so forth.

Mr. O'Shea: I object to the materiality.

Mr. Smith: As I understand, you don't object to the use of the photograph itself?

Mr. O'Shea: No, the materiality.

The Master: We will take it subject to that objection.

A. This is the laminating room. This little room here is where the celluloid was sprayed and the celluloid and glass laid together, and they come out on this conveyor into the bag loading room. This is the original autoclave that I sent out here from Arlington. We had set up and used it some in there. This is the platen press. Mr. Lytle had been working on the platen press method. We set them up together in the early stages to see which one under practical test was the most efficient.

Q. Was this room a part of the original plant of the Pittsburgh Safety Glass Company?

[fol. 403] A. It was.

Q. As it was in the early part of 1928?

A. That is correct.

Q. What kind of a roof or ceiling was it?

A. They were rafters with one-inch board roof and tar paper top. The rafters were covered with whitewash.

Q. I show you another photograph in which there seems to be a large number of people working, one in the center of the photograph, a man with his back toward us as we look at the photograph, and there seems to be a good deal of liquid on the floor. Will you tell the Master what that is?

A. That is the bag loading room and the laminating part of the factory, the same room we saw in the other picture. The experimental presses were right here. This is the autoclave rack and the rubber bags upon it pushed into the autoclave. When it is pulled out of the autoclave naturally a lot of water stays on the bags. As they are pulled off the rack that water falls on the floor.

Q. Is that what this wet indication on the floor is in the photograph?

A. Yes.

Q. This mechanical device that is prominent here. Is that the autoclave or the autoclave rack?

A. That is the autoclave rack.

Q. That is the thing which carried the bags and which was shoved into the autoclave?

A. That is correct. Here is another one.

Q. On this table where two men are working, one with his back toward us as we look at the photograph, what are those articles that are shown on the top of the table?

A. The man with his back toward us is pulling a package of laminated plates wrapped in cloth from a bag which is [fol. 404] being held by an operator on the opposite end of the table.

Q. Is that rubber bag one of the rubber bags that was used in this autoclave method of making laminated glass at that time?

A. That is correct; it was.

Q. This photograph shows the ceiling of the room?

A. It does.

By the Master:

Q. Mr. Sherts, are those photographs in further explanation of the diagram that was referred to yesterday in the process of the manufacture of laminated glass?

A. This diagram shows the conveyor and the photograph shows the room into which the conveyor discharges the glass to be put into the bags. It is all in one big room except that conveyor room is a small enclosure in the big room.

By Mr. Smith:

Q. Will you please state whether or not these two photographs which you have explained to the Master show the conditions as they were on the ground with substantial accuracy?

A. They do. They were taken as a matter of interest at a later date as we standardized and were taking pictures from time to time just for historical interest.

Q. Were you sent by the du Pont Viscoloid Company to this plant to assist in these operations of making this laminated glass?

A. I was.

Q. And did your duties require you to stay permanently at the plant while you were working? That is, you didn't go back and forth to New Jersey or some other point?

[fol. 405] A. I didn't move my family at once, and for several months I went back to Arlington occasionally.

Q. Spent most of your time here in this plant?

A. Yes, sir.

Q. When did you move your family to this neighborhood?

A. We moved here in June, 1928.

Q. And have been here ever since?

A. Yes, sir.

Q. Now, when you came to work in that plant in 1928 as an employee of the du Pont Viscoloid Company, had there been any experiments made in producing laminated glass by a process other than the autoclave?

A. Yes, sir.

Q. What were they?

A. We tried to manufacture by the platen press.

Q. What was that, just briefly?

A. That is a rigid hydraulic press with flat plates which are heated by steam, and it is operated by pressing the plates together so anything put between the plates would receive pressure and heat.

Q. How were the materials arranged before you put them in this press for pressing into laminated glass?

A. We cleaned the glass and sprayed it with the cement and put a piece of celluloid between two sprayed pieces of glass, and put blotting paper or ruber to cushion this glass —a piece of cushion above and below—and placed the package between the platens.

Q. And then applied the pressure?

A. Yes, then applied the pressure.

Q. Now, the other method you were experimenting with is the autoclave method, and were you here when Mr. Clause testified yesterday?

A. I was.

[fol. 406] Q. Did he describe that method with substantial accuracy?

A. Yes, he did.

Q. Well, now, did you make comparisons between these two methods of producing this glass experimentally—that is, as between the platen press method and the autoclave method?

A. We did.

Q. What was the result of those experiments?

A. At the time we had to make a decision whether or not to put in platen press equipment or autoclave equipment we were able to get a very much better yield in the autoclave process than by the platen press process. As I recall, the platen press frequently ran a breakage and shrinkage of approximately 35 per cent., and after taking all factors into consideration, our engineers, our production superintendent, and Mr. Lytle and myself, who were technicians on the plant, we agreed that the best process to adopt was the autoclave process.

Q. And you did adopt it?

A. We adopted it.

Q. Do you remember how many autoclaves you installed at the beginning?

A. Until about May we had only the small autoclave shown in the picture, which is approximately 60 inches long and 24 inches in diameter. About that time we installed a larger autoclave approximately five feet in diameter and twelve feet long. About August we installed and completed installation of the second large autoclave similar to the one just described.

Q. In manufacturing laminated glass using celluloid as the medium of adhesion and reinforcing, does it make any

difference as to the cleanliness of the room—freed from dust and so forth—where this operation is carried on?

[fol. 407] A. Very materially so as the final product has to meet certain specifications, which as near as possible correspond to plate glass. Our product is to be used as a substitute for plate glass, which is free from defects of that kind.

Q. You were making your product out of sheets of plate glass plus the celluloid?

A. Plus the cement.

Q. I mean it was a plate glass product that you were making in the sense that the glass you used was plate glass, not window glass?

A. Practically.

Q. Is that right?

A. Yes.

Q. What about sheets of celluloid with respect to gathering dust or lint or things of that kind?

A. A sheet of celluloid has a high dielectric factor and, as such, is charged with static electricity. It is, therefore, almost impossible, or was at that time, to remove foreign particles such as lint by a rubbing process. It was the frequent experience to see them fly right back on the sheet again after they were removed, and in a room where dirt could not be kept from entering, a sheet simply attracted all loose or floating particles from the atmosphere to its surface.

Q. Did the fact the sheet carried an electrical charge have something to do with that?

A. It did.

Q. Much or little?

A. All; practically all.

Q. You mean to say it had a great deal to do with it?

A. It had.

Q. What kind of a plant was this you were operating in in the early part of 1928 with respect to its proper designing and its proper facilities for an operation of this kind?

[fol. 408] A. It was a building that was used previously for storage materials, and as such no consideration had been given to the structure, the painting, and means of keeping it clean. For this reason the rafters were exposed, had been whitewashed; the doors were loose, and

most everything about the building was contrary to prevention of dirt or elimination of dirt.

Q. Did you endeavor to keep the dirt out the best you could?

A. We went so far as to build a separate room in which we filtered the air, sometimes triply filtering it, in order to keep the dust out of that department. We had our employees wear uniforms, wouldn't permit anyone in that department except foremen, actual operators, and we did everything that we could conceive of to keep the contaminating influences from getting into our product.

Q. When did you build that separate room where you filtered the air?

A. That was built about April, 1928—maybe March.

Q. Now, what was the size of the original plant before you built any addition to the room? I mean the plant of the Safety Glass Company.

A. It was approximately 60 feet wide by 140 feet long.

Q. I show you Defendants' Master Exhibit "C." Does this show the lay-out as it was on the ground, Mr. Sherts?

A. It does.

Q. Now, there is a large enclosure, apparently, which I would say is a rectangle except there seems to be a small corner out of it. What does that represent?

A. That represents the plate glass factory.

Q. Is that what is known as the Creighton plant of the Pittsburgh Plate Glass Company?

[fol. 409] A. It is.

Q. Now, the original laminating factory is so indicated on this plan?

A. It is.

Q. And next to it is this annex, which appears to be completed by a legend here, September, 1928. Is that the additional room you spoke about?

A. No. That is an addition to the factory. The air filtered room I spoke about is located in this building.

Q. In this area that is marked "Original Laminating Factory"?

A. That is correct.

Q. Where were the sheets of plate glass delivered to the Duplate Company's cutters?

A. At this area marked "Duplate Cutters."

Q. Now, from that point on the Pittsburgh Safety Glass Company, as it was then, and later the Duplate Company, and I will call it by that name throughout—that company took charge of the sheets of plate glass at that point?

A. It did.

Q. And the glass was cut by the Duplate cutters at that point?

A. It was.

Q. And then what was done with it?

A. Then it was put on "A" racks and hauled by hand truck at first to the upper end of the plate glass factory, approximately one-third of a mile.

Q. That is, from the cutting point to the laminating factory?

A. To the end of the plate glass factory.

Q. As shown on this plan?

A. There it was transferred from the "A" racks and carried by hand over to this point in bundles.

Q. I think you said approximately a third of a mile where you meant approximately a fifth of a mile. Is that right? [fol. 410] A. That is correct.

Q. 1060 feet it appears from this plan.

A. That is right.

Q. The distance of 1060 feet shown on this plan is from the end of the part of the building marked "Duplate Cutters" over to a line which would be the projection of the nearest end of the original laminating factory?

A. That is correct.

Q. Then the glass was carried by hand for some distance?

A. It was.

Q. Into the building marked "Annex to Original Laminating Factory."

A. At that time the annex wasn't here and there was no way of trucking it across here, so the operators would take as many plates as a man could carry in his hands and carry them across into the laminating factory and put them in another "A" rack there.

Q. Just so as to complete this "A" rack business before I go into the process, after the glass was laminated in the laminating factory where was it taken?

A. It was again carried back across the tracks and put on an "A" rack in the plate glass factory and conveyed on the "A" rack back to the edging room.

Q. Subsequently was there any roadway or similar arrangement made by which the glass could be trucked from the laminating factory to the edging room?

A. After carrying it by hand we purchased an electric truck which would pick up an "A" rack, and was so constructed that it could carry the rack along the road. Then we carried it along this slag road from the cutters to the laminating factory and back again until the period at which time the annex to our factory was completed, and at that time we put a roadway of planks connecting the annex with [fol. 411] the Pittsburgh Plate Glass factory and then began to haul the glass by truck through the Works 1, as indicated by the green line.

Q. Well, in either case, when you were operating by trucks, whether you went over the outside roadway or through the plate glass factory, you had to cross this railroad siding?

A. That is correct.

Q. And there were how many tracks?

A. There were two tracks.

Q. That is, each track consisting of two rails?

A. That is correct.

Q. Did you build up a plank roadway to make the crossing over the railroad tracks as smooth as possible?

A. We did.

Q. Mr. Sherts, I show you this photograph which in the center seems to have a motor truck of some kind with a rack on it. What does that photograph show?

A. That is the "A" rack, called "A" because of the "A" shape, on the motor truck to which I referred which slides under the rack and lifts it off the ground and conveys it.

Q. And was that the kind of a rack and kind of a truck you used in this operation?

A. It was.

Q. Did you have a number of these?

A. We had several trucks at one time, and probably a hundred of those racks.

Q. Did you know of any better way to handle the glass in bringing it from the Duplate cutters to the laminating factory and back to the edging department than the method you did use?

A. We did not. That is standard with the glass people throughout the industry.

Q. And just to finish this point, after the laminated glass was completed in the edging room what was done with it? [fol. 412] A. It was taken to the packing room where it was held until sufficient glass accumulated to fill an order, at which time it was packed and put in the cars and shipped right from that room.

Q. Is that packing room in the warehouse of the Pittsburgh Plate Glass Company?

A. In their shipping room.

Q. At the time you began operations, in the early part of 1928, why didn't you stop and build a proper plant for this before you made any glass?

A. It is impossible or impractical to stop when you contracted to supply such large automobile accounts as we undertook to supply.

Q. Did the Duplate Corporation or its predecessor have large contracts for laminated glass at that time to fill?

A. Not originally, not in the early part of the year.

Q. Did they get some thereafter?

A. I should say the large contracts were received in May.

Q. Well, were you looking forward to such contracts in the early part of the year?

A. As a technical man, at that time we believed that we would have a year to prove the best possible method of making it and to work out the difficulties. We thought we could make it with the small equipment which had a capacity of a few hundred lights per day.

Q. But then these orders came on to be filled before you had the year for experimenting?

A. Yes, sir.

Q. And what did you do in the matter of stepping up your working forces to meet these contracts?

A. We simply had to place orders for equipment and for labor and for other organization men in the quickest possible way and under very forced circumstances.

[fol. 413] Q. What was the condition of the labor market early in 1928? Was there a good demand for labor, or was business slack?

A. At that time in our section business was flourishing and there was a decided shortage of labor particularly of a dependable type.

Q. Were you able to secure a competent personnel in the way of labor and so forth at the start?

A. We were not. Most of our men were either young men that had never had any experience as workmen, or they were the men who were not found desirable by the glass and the steel and aluminum works in our valley.

Q. And had been let go by those other works in some cases?

A. A very great many cases.

Q. Did the quality of labor you had to use affect your product in any way?

A. It did, particularly in night-shift work, as not only the labor was poor but our supervision was extremely poor. We had to put men in the capacity of supervisors who had only had a very limited amount of experience as helpers in that early stage of experimenting with the autoclave and the press.

Q. Did you have to work night-turn?

A. Steady night-turn, Saturday and Sunday, and the only day taken off, as I recall, except for breakdowns was on the 4th of July.

Q. How long did you work at that speed—all of 1928?

A. Practically all of 1928, although records would have to prove exactly. I just know we were putting forth every effort we could. All of us who knew anything about it were down there day and night, trying to help out on the problems, and my general impression is we were working day and night practically all that time.

[fol. 414] Q. Was it a difficult or easy matter to organize this industry and get it going?

A. It was very difficult.

Q. What have you to say as to whether or not your company was pioneering in this autoclave method of making glass in commercial quantities? I mean by that quantities sufficient to take care of orders of automobile concerns.

A. I think we were pioneering, absolutely, as we were undertaking the problem on a very different basis from anything we had ever heard or seen, and in addition to the laminating we were required to furnish a trade that had herefofore not been supplied with this product, and their specifications were much tighter than we had anticipated. Undertaking autoclave pressing on a large scale, problems arose which could not be foreseen, and developments had to be made from day to day as the problems came up. They had never been solved, as far as we knew, by anyone in the industry.

Q. Have you ever heard of a concern called the Saftee Glass Company?

A. I have.

Q. Have you ever been in its plant?

A. I have.

Q. Where is its plant?

A. At that time it was at Wissinoming, Pennsylvania. They have moved its since to some part of Philadelphia of which I am not sure.

Q. How did you happen to be in that plant?

A. I was sent there as an industrial research representative, endeavoring to help them to solve some of the problems that confronted them as applied to pyralin.

Q. You were industrial representative of what company?

A. du Pont Viscoloid Company.

[fol. 415] Q. When did you visit the plant of the Saftee Glass Company?

A. I visited them at various times from, approximately, 1921 to 1925.

Q. What method were they using of producing laminated glass?

A. They used an autoclave and rubber bag method, which in principle was approximately like ours, the one we adopted, but from a practical standpoint or mechanical standpoint was entirely different.

Q. Will you tell the Master briefly how it differed from the process of the Pittsburgh Safety Glass Company?

A. The Saftee Glass Company of Wissinoming was a very small company and their operations were what one would consider more or less hand operation. An operator would prepare a few pieces of glass and take them to a place where they would be cleaned and sprayed with cement, and after accumulating a few of them the same operators would put them into rubber bags and evacuate them, and their presses were very small, approximately thirty inches deep by thirty inches wide and fifty inches long.

Q. When you say "their presses" do you mean their autoclaves?

A. Yes, sir. They called them tanks. And in putting the glass in a small autoclave of that kind there was no difficulty encountered circulating the water so as to get even temperature and pressure, and they had a few ex-

perienced operators. Their heating and compression was a very simple problem as compared to ours on this much larger scale. They had been in business from approximately 1914.

Q. Well, would it have been possible for that Saftee Glass Company of Wissinoming, with the plant and equipment it had, to turn out anything like the glass that you were called upon to turn out in the Pittsburgh Safety Glass [fol. 416] Company's plant when you received the Fisher Body orders?

A. My opinion is that it could not have begun to handle any quantities of that size.

Q. Have you ever been in the plant of the Triplex Corporation?

A. I have.

Q. When?

A. I was in their plant several times in 1927, and again in the fall of 1928.

Q. How did you happen to go there?

A. On the first several occasions I was sent there at their request, went there at their request, to help solve difficulties in connection with their pressing and their handling of the celluloid. On the latter visit I was invited there by Mr. Haskell as a return visit to the visit he made to our factory, to see all their equipment and make any suggestions and get any information that might be of mutual benefit.

Q. When you went there in 1927 were you sent by the du Pont Viscoloid Corporation?

A. I was.

Q. You were still in its employ?

A. Yes.

Q. Without going into details, what method was the Triplex Corporation using to press their glass together and make it laminated glass?

A. They were using an alcohol process for dipping the celluloid, and the platen press method for effecting the bond.

Q. Were they using autoclaves?

A. They were not.

Q. Now, was there any other company that you knew of that had been using the autoclave process for producing laminated glass before you began with this Pittsburgh Safety Glass Company?

A. Not that I know of.

[fol. 417] Q. Now, we have spoken of the dust and matters of that kind; also the labor troubles. What was your experience in the use of these rubber bags in making laminated glass? Did you have any troubles about that?

A. The rubber bags at first tended to fail, due to the heat and pressure which broke down the rubber. This permitted moisture to get into the bag which ruined the product, or it permitted air to get into the bag before it got into the autoclave, which also interfered with your compression and produced a piece of laminated glass which tended to separate.

Q. If water got into one of these rubber bags before you had completed the adhesion of it in your autoclave, how would that spoil the product?

A. If water got in, it would develop the same steam pressure inside the bag as you had outside the bag and nullify the effective pressure. Besides, the steam has the property of precipitating pyroxylin from celluloid, making it turn white, and naturally make a bad product. Furthermore, it has the property of impregnating celluloid up to a certain point before it will turn celluloid white. In doing this it causes the celluloid to swell. The result is you have a laminated plate in which the celluloid in areas is saturated with moisture, and this moisture escapes after it is put into service or during subsequent operations, causing the celluloid to shrink and pull away from the glass.

Q. In your judgment is it necessary to have these rubber bags tight so they won't admit either water or air in this process?

A. Yes, absolutely tight, so that neither water nor air is in there, unless there is a possibility in the case of air of putting a non-compressible chamber in the rubber bag so that the air can escape to the non-compressible chamber, and in that way not nullify the pressure of the outside. I [fol. 418] might say here that we argued and there was a great difference of opinion on that point, during the first several months of production—large production.

Q. But so far as the water is concerned, you must keep that out?

A. Absolutely.

Q. And if that gets in, that is the end of your proper lamination?

A. That is correct.

Q. Now, then, this air. What about this having a separate chamber in the bag for the air?

A. By non-compressible chamber we mean a steel chamber with walls and supporting pins in it, capable of withstanding the pressure. That chamber is vented by holes through it leading to your glass. Then the slight amount of air that stays in there after the plates are put in the bag and the bags are closed under the temperature and pressure flows to this point of lower resistance within the walls of the container, and in that way escapes from between the plates. We used them only for a short time, at which time we found they caused other breakage and wearing out of the rubber bag, so that they defeated their purpose, and we had to discard them.

Q. So the net result was what with respect to both water and air getting in these bags? Must you keep them out?

A. Must keep them out—a very, very small degree.

Q. There was some testimony yesterday, I think, about the rubber bags when they are inside the autoclave drawing down over the edges of the glass and producing what Mr. Clause called let-gos. I am not certain I grasped that entirely, and I wish you would make that clear to the Master.

Mr. O'Shea: I would like to make an objection to the materiality of all this testimony.

[fol. 419] The Master: We will take it subject to the objection.

A. During this rush for production it became necessary for us to put double sandwiches of glass in a bag, and at one time we were putting four sandwiches, one on top of the other, in a bag. When the bag is evacuated under these conditions, with eight layers of glass and four layers of celluloid stacked on top of each other, it becomes necessary for the bag to stretch down over these edges and the net result is that the bags, which had to be reinforced to prevent them from cutting along the sharp lines of the glass, exerted a terrific leverage action on the very edges of the glass. This is true whether one sandwich is in or whether four sandwiches are in the bag. In the center of a plate the celluloid becomes plastic by heat but cannot flow away; around the edges, when the celluloid is soft and there is no resistance against the celluloid, the glass will yield to a

pressure of 150 pounds per square inch and tend to bend together, causing the celluloid to flow from between the plates or become thin at the edges. Measuring this deflection, our product averaged from half a thousandth to two and one-half one-thousandths less in cross-section at the very edge than at a cross-section a half inch in from the edge. This amount of bend in a piece of glass forty-eight inches long would represent a bend of approximately six inches. In other words, a light of glass forty-eight inches long, bent to the same radius, when laid on a table would only come within approximately six inches of the table at the center, which shows the terrific strain in the glass, and as glass will not fatigue under these conditions, it represents a constant pull, tending to stabilize itself and reach its normal plane. This pull is aggravated by thermoexpansion when the plate is subjected to heat or cold, as the at-[fol. 420] mospheric condition. It is also aggravated by a difference of moisture content or moisture attack, so that under practical use glass that has these strains will sooner or later tend to come apart.

Q. Do I understand you to mean that if the rate of deflection from a plane surface, which is shown by the glass from the distance of half an inch from the edge of the sheet to the edge, is applied to the whole sheet forty-eight inches long, it will make an arc which at the center will be six inches away from the plane surface?

A. That is correct. That is merely to illustrate in a more concrete way what that edge strain amounts to.

Q. Now, when you say this glass, this half inch at the end of the plate, is bent in that shape it tends to return to the normal, you mean there is a springing back tendency as long as that bend continued?

A. That is correct.

Q. What effect did that actually have upon the laminated glass you were producing there?

A. It had either the effect of pulling loose, causing a separation, or it caused the glass to break along that line half an inch back. It was not unusual to find back lights broken in a curve practically the entire way around half an inch in from the edge. At this time windshields broke very frequently in our edging operation because of the strain which was just at the point of overcoming its strength.

Q. Were these sandwiches of laminated glass cut to finished size when put into the autoclave?

A. They were.

Q. Would breakage of half an inch around the edge make any difference?

A. It would make it absolutely unsalable or unusable for the purpose for which it was intended.

Q. It had to be thrown aside?

A. Yes.

[fol. 421] Q. Will you describe something about these let-gos? What they were and the effect they produced on the glass.

A. Well, a let-go is a term used to define a pulling away of the glass from the celluloid around the edge. This condition was not acceptable to our customers and necessitated their rejection whenever it occurred.

Q. If water is allowed to get into the edge of a piece of laminated glass where there has been a let-go like that, as, for example, water might get in in its use in a windshield, would that make any difference in the character of the celluloid?

A. If we have a separation, a let-go, to start with, moisture gets in that and causes it to grow. If there is no separation to start with, and laminated glass in which celluloid is used as a binding sheet is subjected to continuous moisture, such as you have described—the channel of a windshield—separation will gradually develop; whereas it would not develop by intermittent moisture as would occur on the top of a side light where it would get wet with rain one day and be dried out the next day.

Q. If water gets in at the edge of one of these pieces of celluloid that is in a light of laminated glass, will that extend further into the light?

A. The moisture penetrates celluloid—it is very much the same as wood—causes the celluloid to expand and push the plates of glass apart. Its progress inwardly through the celluloid is very slow.

Q. You spoke a while ago of one of these rubber bags being evacuated. What did you mean by that expression?

A. Having the air exhausted from the bag.

Q. May I ask you what is your present position with the Duplate Corporation?

A. Superintendent.

[fol. 422] Q. Does that mean plant superintendent?

A. That means plant superintendent with the heads of production, scheduling, service, inspection, efficiency, welfare, accounting, reporting directly to me.

Q. How long have you been superintendent of the company?

A. Since June, 1930.

Q. Was there any superintendent of this plant when you went there January, 1928?

A. There was not.

Q. When did the company first get a superintendent for the plant?

A. As I recall, the superintendent was sent there about February. It might have been the latter part of January.

Q. 1928?

A. Yes, sir.

Q. What was his name?

A. Mr. McClure.

Q. Had he had any experience in the manufacture of laminated glass?

A. He had not.

Q. How long did he remain as superintendent?

A. He remained until the fall of 1928.

Q. I don't wish to criticize Mr. McClure unduly, but did he or did he not prove to be capable of operating that plant?

A. In the opinion of our general manager he did not appear to be capable, I should say.

Q. It was a new enterprise for him?

A. It was.

Q. And who succeeded Mr. McClure?

A. Mr. Fisher.

Q. And how long did he remain as superintendent?

A. He remained approximately three months.

Q. Until when?

[fol. 423] A. January, 1929; maybe February.

Q. And had he had any experience in the manufacture of laminated glass?

A. He had not except as assistant superintendent to McClure for a few months before McClure left.

Q. How did Mr. Fisher get along as superintendent? Was he able to manage the plant?

A. Not in the opinion of our general manager.

Q. Was he removed?

A. He was let go.

Q. Who was the next superintendent?

A. A Mr. Penning, who was our general manager, acted as superintendent and general manager.

Q. Had he had any experience in the manufacture of laminated glass?

A. He had none.

Q. How long was he superintendent?

A. He was superintendent until June, 1930.

Q. Do you know how it happened that he ceased to be superintendent?

A. I think in the opinions of our officials they were unsatisfied with the way he was handling the work.

Q. The company was feeling around here and trying to get the best man for this job apparently?

A. That is right, doing the best they could.

Q. I want you to speak briefly about the hauling of this plate glass on these trucks. That is, after the glass was laminated—hauling to the edging department. Did that have any effect on your output?

A. The glass had to be hauled to the edging department on these "A" racks and represented new problems that had never been experienced even by ourselves in handling plate glass, as our product which was delivered to the edging department in the early stages was frequently very badly bowed, and this caused a considerable amount of trouble trying to keep a stack of glass reasonably tight to prevent [fol. 424] slippage. So we were faced there with the problem of more shuffling than under ordinary glass operations —plain glass—and due to the contour it was very difficult frequently to stack the glass so that the stacks wouldn't fall over. At first our "A" racks were constructed so that in order to prevent glass from toppling over, such as back lights which have rounded ends, we would lay them flat and they would project over the end of the "A" rack so that the electric truck caused considerable damage in bumping them. An occasional rack was upset due to the fact that inexperienced operators failed to balance the glass on both sides of the rack and an inexperienced truck man tried to pick it up with all the weight on one side.

Q. Did you make any effort to keep the plates of glass from sliding or cracking as they were being transferred to these trucks?

A. We tied them with ropes, which is standard practice in the plate glass industry, as tightly as we could without causing breakage.

Q. Notwithstanding that, state whether or not there was any considerable breaking or marking of the glass with lines by this transfer in these trucks.

A. Yes, there was a lot of breakage and chipping. Our racks can account for a considerable amount of chipping, due to the fact that nails were in them and would tend to work out by conveying over the tracks, and they would work up where they would rub over the surface of the glass or hit the edge. Our felts were nailed on by inexperienced men, and the trouble with resting glass on nail heads was it settled through the felt and we had breakage from simply trying to tie the glass tightly together so as to prevent shuffling, and in carrying it that distance through the plate glass factory and after having brought it out into our room dirt and foreign matter such as sand would get between the plates which would score the surface of the glass, causing rejects.

[fol. 425] Q. Were there any of these corners of the glass that had to be kept particularly sharp on any of these windshields?

A. On the Fisher "V. V." type windshield. That was a specification, as a rounded corner would fail to contact the rubber seat and permit water to leak through in case of a severe rainstorm.

Q. Did you have any special trouble with the breaking of those sharp corners?

A. We certainly did, particularly in the operation of pressing where the rubber bag came down over the corner at both sides of the corner and represented a terrific leverage right at the corner so the celluloid could flow both ways.

Q. So you had both the rubber bag trouble and the transportation trouble?

A. Yes, and edging trouble.

Q. Now, in transporting the plates of plate glass from the Duplate cutters location into the laminating room, was there any breakage or scratching of the glass there?

A. We suffered a very great amount of shrinkage. Due to that poor or difficult condition of operating, as in cutting the contours or the pattern shapes and stacking them on racks, very fine chips of glass got down between the two

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plates of glass causing the surface to be marred, so that the plates had to be rejected before laminating them. In plate glass frequently a marred surface can be removed by an additional scratch wheel operation, but in laminated glass your scratches come between the plates and there is no way of getting at them. They show up just as objectionably between the plates as they do on the outside surface. Breakage—venting in that transportation was very high.

Q. I want to ask you to explain the difficulties, if there were any, about cutting these pieces of plate glass to size [fol. 426] before you made them up into the sandwich.

A. That was practically a new operation so far as we were concerned.

Q. Why was that?

A. We had to employ all new help or occasionally failures in that kind of work, and the one-eighth inch glass we were using was almost a new thing at that time, and we were so concerned with these inexperienced operators. If the template would slip or their cutter would slip, it would result in a rejected plate. Frequently in breaking it off their cut wasn't complete, and would run the crack across the center of the plate or some place where it would cause the plate to be rejected. Besides, they examined the glass as they cut it. We had no expert examiners. As a matter of fact, we didn't know just what would pass and would not pass our trade, until that was established by actual experience. They used glass—let glass get up to our assembly conveyor which caused rejects.

Q. You said this matter of breaking off the edges of scored one-eighth inch plate glass was new. Hadn't there been glass of that gauge used before—plate glass?

A. Very little plate glass up to that time. Just about that time was the development of the one-eighth inch plate glass for this particular purpose in this territory.

Q. Did the men find difficulty in breaking off the edges outside the pattern without injuring the edge remaining?

A. They did. We were only able to overcome a large number of difficulties by experience.

Q. How much of a margin did you find was needed over the size of the pattern to allow the men to take hold of it to break it properly?

[fol. 427] A. At that time we standardized on an inch margin as being a reasonable amount to allow an operator

to get a clean cut, which was a prime essential in this cutting so that we would not experience later difficulties due to the high pressure and temperature to which the glass was subjected—the heating and cooling expansion and contraction in our autoclave presses.

Q. I suppose by the use of plyers you could have used a quarter-inch margin for breaking off?

A. We could have, but it would have materially increased our cost of operation and probably offset the decrease in cost of glass.

Q. Why?

A. When a man has to use a pair of plyers he goes along the plate and nips it in various places all the way around and goes back and picks up the chips between the two original breaks, and that slows him up. So that the labor in doing that would in many cases offset the additional cost of the glass. There is a point in there where you strike an economic balance, but if plyers have to be used all the way around, your increase in labor cost would offset a large allowance for glass so as to facilitate operations.

Q. If the edge of the plate that goes into the laminated glass is not made clean and accurate, does that make any difference in laminating?

A. It has the tendency of causing cracks to develop, due to expansion and contraction which in a plate is always more or less around the edge than in the center. If there is more contraction, there is a strain which will tend to cause a split to develop in the glass.

Q. Now, will you explain to the Master whether the Duplate Company suffered any loss in dealing with its customers by reason of the necessity of having an inch margin around the scored outline of the glass to allow for a proper edge in breaking? There was some testimony by Mr. Clause [fol. 428] on that subject, and I would like you to elaborate a little bit.

A. If that is the finished size of the plate—29½ x 17½—our company, the same as any other plate glass company, because it was standard in the trade, got paid for an 18 x 30, but if we got an 18 x 30 plate over there, it didn't allow this man the full inch margin so we had to order the next higher bracket size, which is always two inches higher in both dimensions. They don't work on odd inches; it isn't

standard. It is always the even inches or the next even inch. That was what you paid for.

Q. What would the next bracket be?

A. 20 x 32. That would give the man cutting a little more than was actually necessary, but we would get that, or we would have to pay for it just the same, because we couldn't buy a 30½ or a 30¾. We had to buy a 30 or 32.

Q. Now, in other words, in order to get a finished article 17½ x 29½, your company would have to pay for a piece of plate glass that would be 20 x 32?

A. 32 x 20; that is correct.

Q. Because you found you had to allow an inch margin for breaking off?

A. That is right.

Q. But when you would sell to your customer a piece of glass 17½ x 29½ what dimensions, according to the custom of the trade, would you charge them for?

A. 18 x 30.

Q. So that in that case you would be paid for a plate glass 18 x 30, whereas the company would have to buy one 20 x 32?

A. That is correct.

Q. And the difference would be a loss to the company?

A. That is correct.

Q. Did that happen frequently?

[fol. 429] A. Very frequently.

Q. Is this business of charging the customer for a light of 18 x 30 where it measures only 17½ x 29½—is that the custom of the plate glass trade?

A. That is the standard custom with the plate glass trade.

Q. And the requirement of buying in brackets—that is to say, in this case the next bracket would be 20 x 32—is that in accordance with the plate glass trade?

A. That is the standard practice.

(Recess taken until 2 o'clock P. M.)

Afternoon Session

J. H. SHERTS resumes the stand.

Direct examination (continued).

By Mr. Smith:

Q. There is one question I asked you this morning, Mr. Sherts, and that was as to the effect of water getting to the edge of one of these laminated sheets of glass. If that glass is properly made and there is proper cohesion, would the amount of water that would get in such a sheet of glass, say in the door lights of an automobile, in any way interfere with the pyralin?

A. No, sir, it would not.

Q. How about the windshield?

A. In the case of a windshield where, if the glass is held in a fixed channel by felt or rubber, it collects moisture and keeps it there so the edge is under constant moisture attack, even in a temperate zone, and under constant moisture attack the pyralin does tend to absorb moisture and cause separations to develop which grow right up into the [fol. 430] plate and cause replacements in a period of—we notice them—three months to a year and a half.

Q. How do you handle that at the present time with windshields?

A. We were forced to adopt what has been termed edge sealing in all windshields and back lights recently because of the experience with lights in service. Originally we didn't think it was necessary in windshields and back lights. We failed to appreciate how severe the moisture attack was, but our actual experience showed a large percentage, made the best way we know how, without any edge strains or other defective laminations, separate just because of that constant moisture attack due to water staying in the channel.

Q. The back light of the automobile body has the same trouble?

A. The same as the windshield.

Q. Not the lights in the doors that are raised and lowered?

A. The moisture attack isn't constant enough to cause trouble in practical service.

Q. How about the glass separating the chauffeur from the back compartment?

A. That wouldn't require it.

Q. You have spoken of attacks of moisture in this well made product. Supposing you used in the windshields or the back light a sheet of laminated glass that has had this let-go in it already, what will happen there?

A. Then, of course, the moisture from the atmosphere is sufficient to get in there, and when it gets in it stays in that crevice the same as it stays between two plates of glass. It is almost immeasurably narrow, so there is no circulation of air, not sufficient to remove the moisture, and you have in that little bit a separation an atmosphere of constantly high humidity, which continues to react and [fol. 431] work inwardly. It forms a little cell, as it were, to hold the moisture and having no circulation—that cell you can tell because of the film of light reflection is probably one hundred thousandths of an inch thick but sufficient for the moisture to get in, and a very little moisture will make that one hundred per cent. saturation.

Q. So what is the result? How do the sheets which have let-gos compare with the perfectly made sheets when subjected to the same conditions?

A. Well, the one will separate very much more quickly under the same conditions than the other—that is a very ban condition; and under normal conditions of the atmosphere one will continue to separate and the other won't because there is no place for it to start.

Q. Which will not separate in the latter case?

A. The one that is perfect to start with—has no strains.

Q. From the standpoint of appearance, will the automobile makers accept laminated sheets that have let-gos in the edge?

A. They absolutely refuse to accept any with separations on the edges. That shows during the first three months of our operations because we were not able to produce a glass that would not show any. We suggested, and because we had no experimental data to cause us to have any different opinion we believed at that time that these separations caused by the edge strain would only go in as far as the edge strain, and therefore in side lights and windshields that fit in channels approximately a quarter of an inch deep they accepted from us lights that had separations that

wouldn't extend beyond that—up to three-sixteenths of an inch. None, of course, on the top edges where they would show, but where they didn't show Chrysler and Fisher Body all accepted the same standard. They had to have glass and they said, "We will put it in and if it goes bad, you will have [fol. 432] to replace it." It was the best we could do, and as we were throwing out approximately 30 per cent. as fast as it came from our bags, we had to ship them in spite of the fact that we hadn't had time to prove it out that it wouldn't stand up satisfactorily, or that it would stand up saisfactorily, and they put it in their cars at that time in spite of the bad condition, which we would recognize now as being defective and having in it the germs of trouble to develop under actual service in cars. All that, of course, had to be developed only by experience, accelerated tests in the laboratory failed to check—actual service tests, and that accounts for a very large percentage of our returns from the customers.

Q. Did a large amount of this glass of the character you describe that you furnished to the manufacturers come back to you?

A. Well, some customers rejected an average of 30 per cent. of what we sent them.

Q. Is that high or low?

A. Oh, that is terribly high. That applies—I mean they rejected that much before they put it in the cars. At the same time they were putting in their cars a great number of lights, a large percentage of which showed this separation somewhere down where it was to be hidden, and we all took the gambling chance and hoped that it wouldn't develop, but the result was that a very large percentage continued to grow until it became noticeable to the driver, and in that type of car, as soon as a little defect of that kind becomes noticeable, they took it back and our company had to replace it free of charge, even go to the expense of paying for them to take it out and put a new light in. We got the glass back in full carloads from some of these people.

Q. Now, what are vents?

[fol. 433] A. A vent is a term used in the glass trade to cover a crack which starts at the edge and gradually works inwardly until it is objectionable, and a crack in a glass like that starting inwardly just grows as time goes on and terminates when it reaches the edge, and there is no rhyme or

reason just where it is going to go. It is a little mark starting at the edge and working inwardly.

Q. It may go clear across the plate?

A. Yes.

Q. What was the principal cause of these vents in a sheet of glass? Does it come from the cutting where they break off those strips?

A. A great percentage came from that originally because of inexperienced cutters.

Q. Was that why, one of the reasons, you insisted upon leaving a one inch margin for breaking off around?

A. That was the principal reason for wanting that, to prevent vents, which of course to anybody without experience was an obvious difficulty.

Q. You spoke of moisture getting to this glass in your process through these bags leaking. Was there any other way you had trouble with moisture? Did you have any trouble with moisture with any cloths that you used after you took the stuff out of the bags?

A. The way we were operating, when the bags came out of the autoclave, of course they were wet as they could be. In evacuating the bags they tend to rumple around the edges and form little depressions which would carry water, and when they were pulled off the autoclave rack and put on the unloading table, of course the unloading table became as wet as it could be, and when you pulled the cloth out of the bag it picked the moisture up. Then when you opened the bag the water was between the two lips at the mouth of the bag, and when it was opened that gradually worked [fol. 434] into the inside of the bag so that a perfectly good bag could contain moisture that got in through the lips and the cloths picked up moisture from the table.

Q. What do you mean by "cloths"?

A. The cloths are the pieces of canvas that we used for wrapping the sandwich before we sealed it into the bag to keep from scratching the glass as it was put into the bag. In doing this double pressing and four-decker pressing, as we called it, we had to put blotting papers between the plates of glass, and it was only after months of operation that we discovered that the paper itself, blotting paper, under humid conditions absorbed sufficient moisture from the atmosphere to cause a defective product. That was only determined after we had taken the step first of drying the bags. We first learned that holes would cause moisture

to get in. That was the most obvious thing. We started to inspect every bag. We inflated them to see if they were leaking. Then we set up a drying of them, where each bag was placed over a pipe through which hot air was blown into it to dry them out. Knowing our bags didn't leak and were dry to start with, we still encountered this moisture trouble and then we discovered, probably not until December, 1928, that the paper itself used in packing in there carried sufficient moisture to completely saturate the small amount of air that was left after the bag was evacuated as far as it was possible to pull it with a practical vacuum pump. There was very little air in there and it took very little moisture to make that thoroughly saturated and impregnate the pyralin and make it swell up and turn it white.

Q. About when was it you adopted the preliminary pressing process instead of the rubber bag process?

[fol. 435] A. The preliminary pressing process was adopted about October, 1929, but not completely. I must explain that from October to December we preliminarily pressed with rubber bags. We first put the plates in rubber bags and only gave it 80 pounds pressure to stick them together; then we took them out of the rubber bags and put them in the autoclave without rubber bags, and it was on January 1, 1930, that we discontinued the use of the rubber bags completely, having by that time obtained a preliminary press that we use at the present time and employed no bags.

Q. There have been some cases, even after you adopted the preliminary pressing process, where you used your old plant and made some little glass in rubber bags after that, did you?

A. No, not in the old plant but in our new plant. We still use the rubber bags for plates that are too large to go in our preliminary presses.

Q. Is that infrequent comparative to the other?

A. Infrequent comparatively speaking, but I will take a step farther than that. After they come out of the rubber bags we put them in the autoclave to do the pressing. In other words, we only use the rubber bags now, since January 1, 1930, to preliminarily press and, of course, they don't go into water now and it is only a few bags that can be thoroughly inspected, as no production depending upon it, makes us operate under a favorable condition.

Q. When you say they don't go into water what do you mean?

A. We put the bag right into our carbitol autoclave but only use eighty pounds pressure.

Q. What do you mean by carbitol?

A. That is the liquid that has been described as being used. I ought to state that carbitol isn't quite the liquid. We use diethylene glycol. Carbitol is ethylene glycol, to all intents and purposes the same, but one is a little cheaper. [fol. 436] We did use carbitol for a time, but you can mix them together and use them.

Q. Are these liquids less injurious to laminated glass than water in the autoclave?

A. Yes, but water could be used in that state because it is a very short period. We use this liquid for the simple reason that we can pull our autoclave charge hot. With water you have to cool it down or else it will turn into steam and be bad operating. Water tends to corrode your equipment, and this other solution works to an advantage from a production standpoint.

Q. Roughly, what percentage of your glass since January 1, 1930, has been made by the preliminary pressing process exclusive of rubber bags, as compared to the part that has been made since that date with rubber bags?

A. Roughly speaking, I would say 99.9 per cent.

Q. Which way?

A. With preliminary press without rubber bags. Understand, of course, rubber bags at the present time or since that time are used in preliminary pressing and not like the old method of using rubber bags.

Q. Where they went in the autoclave?

A. That is right, where we gave them 150 pounds pressure.

Q. Do you still use rubber bags in your preliminary pressing?

A. Just for this one-tenth of one per cent. perhaps—sizes that are too large to go in the preliminary press, bent glass, and a few specialties.

Q. Take the matter of pyralin losses. Do you know any facts which you can tell the Master which would account for these large pyralin losses which have been suffered by your company?

A. When we started in, the pyroxlin plastic companies had their big hydraulic equipment built up around what

was required for combs, brushes, mirrors, toilet articles, [fol. 437] and sheet pyralin for automobile side lights, and so forth; and that consisted of a big iron case 20 x 50 inches in size—21 x 52 approximately. That is about all the equipment they had at that time except one other which they made up to supply Ford windshields. In other words, there wasn't sufficient business and good reason for making a lot of different sizes at that time. The Ford windshield business was large enough to justify expenditures required to make a certain number of cases to press that particular size. That size didn't represent an economical size for any of our production here, so we were forced to use their standard size, 20 x 50, and it so happened when the orders came in for Chrysler and Fisher that in a great many cases you could get one side light out of a sheet and you had an end that wasn't big enough for a side light or back light or windshield or anything else we had on our order. We saved those ends for a long time, hoping that something would come in that we could use them for. After a year or so we had such an accumulation of ends that we didn't know what to do with them and they were disposed of as scrap. In those sizes at the beginning it was not unusual to see 30 per cent. of the pyralin sheet scrapped. Well, as soon as we saw that, in June or May——

Q. Of what year?

A. 1928—I presented a paper to the du Pont Company showing them how much we could save if they would put in new equipment and give us seven new sizes. They went over those figures and saw that they would realize sufficient to justify the investment and started mechanical changes necessary to produce those sizes for us, so that in a month or so after that we were beginning to get a variety of sizes which cut very much more economically. I figured out at the time we started, as soon as we knew what sizes Fisher were ordering, that with the 20 x 50-inch sheet the best [fol. 438] theoretical loss, everything being done perfectly, we would have a 25 to 30 per cent. scrap loss at the minimum.

Q. In pyralin?

A. Yes, in pyralin. With the new sizes we had a possibility of cutting our scrap loss down to 15 per cent. With those theoretical figures I didn't think our production department were doing bad if they ran 20 per cent.—15 or 20

per cent. above the theoretical loss, and that is just about what we did. I have never seen pyralin—such a wastage of pyralin in any operation at Arlington. I have had a lot of experience with it and it was the first thing that appeared to me as one of the very expensive commodities used in the glass being wasted at the rate of 30 to 40 per cent., and we made the change just as quickly as we possibly could and not without considerable persuasion on our part. Now we have about twenty-four to thirty sizes and we revise them every few weeks, as soon as we see a customer's order.

Q. When you spoke a moment ago that you didn't think it was out of the way to get 15 to 20 per cent. actual loss in factory practice above the theoretical loss, what would that bring your loss to?

A. I mean 15 to 20 per cent. over the theoretical loss. In other words, 20 per cent. or one-fifth would run it up to 18 per cent.

Q. If the theoretical loss was 15 per cent., you wouldn't be surprised to have it run actually to 18 per cent.?

A. That is correct, and when I said 25 per cent.—during those first few months where we couldn't supervise it, I saw from time to time, and operators were discharged for the condition, where a man made a mistake and cut the wrong sizes and he took fifty sheets at a time that were cut wrong, and rather than have that get charged up against him, where he would have lost his job anyway, he took them over [fol. 439] to a cutting machine and cut the pieces and threw them in the scrap box so it wouldn't be held against him.

Q. Was that done to your knowledge?

A. That was done to my knowledge. I happened to walk in the room where the man was doing that on two different occasions, and, of course, the man was let go immediately, but conditions such as that existed beyond our control, especially working three shifts when only a few had any idea of what was right and what was wrong.

Q. In other words, these cases where you saw the man cutting them into pieces were where the man was covering his error by cutting them in pieces?

A. Yes, sir. Other times these were stamped wrong. We had a stamp—that is, the Pittsburgh Safety Glass Company's trade-mark. If that gets in the wrong corner or up a little too far or down a little too far, that causes a rejec-

tion, and sometimes you would find a hundred or hundred and fifty sheets stamped wrong before it was caught. We had a machine and the thing operated the same as putting a mark on a toothbrush handle, and that was impressed in the sheet in gold letters that couldn't be removed, and then the sheet had to be cut down and you would lose 25 per cent. of the original area of the sheet.

Q. What caused this mistake in the stamping?

A. The operators thought they knew and they would go ahead with the thing. They were rushed to get out production, and although it was laid out on a blueprint, there was misunderstanding and poorly organized and lack of knowledge where to put this thing.

Q. Would the inexperience of your personnel at that time have something to do with it?

A. That was the most important source of trouble.

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Q. When was your new plant built?

[fol. 440] A. Our new plant was built during the summer and fall of 1928.

Q. Is that the brick structure?

A. The brick structure; five-story building.

Q. And when was it put into service?

A. It was put into service about the last week in December, 1928, and completed during the next couple of weeks.

Q. Just briefly, what is the character of that? Is it a modern, well-equipped plant?

A. Yes, sir, that is a modern, well-equipped plant from every standpoint for manufacture of laminated glass. Brick, concrete, fireproof building, five stories high.

Q. Does it provide for clean air and matters of that kind?

A. It provides for clean conditions in general, but of course inside that factory we don't make an effort to keep the entire factory clean. We have a separate assembling unit, which is a little building itself, inside the big building with double and triple filtered air.

Q. That is where the clean air is necessary?

A. Until after the plates are laid together.

Q. Now, when you got into your new plant did you have any trouble?

A. When we went into our new plant we made a number of changes intending to overcome a lot of difficulties we

were experiencing in the old plant, and we found a lot of these changes, although they cured one condition, they introduced a more serious trouble of another nature than had been expected, and the result was there was a lot of changes and modifications in equipment necessary before we knew that it wouldn't work at all. That took us through January and February. By February 15th there was so much trouble with production difficulties that our yield from the examiners after pressing went down to 62 per cent.

[fol. 441] Q. Was that in 1929?

A. 1929. About the middle of February it was so bad that we decided to go back to the old factory again and operate there where we could do somewhat better, so then for a period we operated both factories until we made the transition again back to the old factory.

Q. How long was it before you got your new factory in proper condition?

A. As soon as we got back into the old factory, about March——

Q. March, 1929?

A. 1929—we started to revamp the new factory, and it was about July, 1929, when we started to move the production back into the new factory again. Then for a month or so we operated it as before, part in one factory and part in the other factory. During the time we were in the old factory for the second time we continued to do our glass cutting in the new factory, didn't resume operations in the plate glass factory where we originally cut it, but we had to transfer the glass, therefore, from the plate glass factory to the new factory, then from the new factory to the old factory and from the old factory back to the new factory again for edging, inspection, packing and shipping.

Q. When did you get the difficulties in the new factory ironed out so it was in proper shape for operation?

A. We got back into the new factory in July.

Q. 1929?

A. 1929. Probably completed the moving by August, but after that, when we tried to put this new equipment which was built larger than the old into operation, difficulties continued to come up so that it was not until the end of the year that we had it in fairly good working condition, and before that was done we had decided to revamp the autoclave system and started tearing that out and changing that around,

so it was a state of confusion from the time we started in the new factory until January 1, 1930.

[fol. 442] Q. Well, now, at or about—I am not holding you to the exact date—at or about January 1, 1930, as I understand it, the new factory was in good shape with the difficulties ironed out?

A. Yes, sir, then we were in fair shape. A lot of changes were made after that, too. They are constantly keeping developing the thing because it is a matter of development. It couldn't be seen anywhere else, and a lot of major changes were made after that time, but I should say fairly good operating conditions after January 1, 1930.

Q. In the new factory?

A. Yes, sir.

Q. And after January 1, 1930, for the most part did you use the new factory and not the old in your operations?

A. Yes, sir.

Q. Now, as the result of these difficulties in your manufacturing operations, will you state whether or not you had a large amount of glass rejected? I mean that you rejected a large amount of glass that you would produce.

A. At the beginning we considered ourselves fortunate if we could deliver to our edging department approximately 70 per cent. of what we put in the bags to press. That gradually went up and we camped on one type of defect after the other. By that I mean boys with more than average ability and training were put on to study these various defects to ascertain the cause and to work up a method of eliminating them.

Q. In addition to those rejections, did you have to reject glass after it came from the edging department?

A. Glass that was sent to the edging department frequently developed defects that were not the result of edging or anything done in the edging there. They were direct carry-overs from pressing that didn't develop until after they had been inspected and sent down there, and in that [fol. 443] department we felt we were fortunate if we could maintain originally somewhere around 80 per cent and then later 90 per cent.

Q. Ninety per cent. of the production?

A. Of what we sent down there—not the production.

Q. That is to say, the losses there would be from 10 to 20 per cent. of the glass they processed?

A. Yes. Beyond that, as I said before, in rough figures, we got a large percentage of returns from customers.

Q. In addition to the glass which you people were forced to reject in your own factory through various defects, was there any substantial amount of glass rejected by your customers during this period?

A. The customers' glass had to receive an inspection and certain customers rejected as high as, I recall definitely, 35 per cent. of big shipments before they even put it in their cars or did anything with it. Others were less, and accounting figures would have to be gotten to decide just what they were, but there were tremendous returns because of these little defects that developed after they left us, or other things that were not acceptable to them that we sent out in good faith, such as edging or template size and inside scratches, and one time we ran into haze that you can't see in ordinary daylight, the same as that window. You don't notice it but after it got into the car and you drive at night it simply cuts off your vision so it is blank, and we found we had sent out to our customers thousands and thousands of plates with that defect. That had to come back to us, and after it came back to us we found we had thousands and thousands of those in production, and we went to our pyralin and inspected our pyralin and we had to return our entire pyralin stock, shutting our line down, and we trucked it by truck to Creighton by day and night to keep us [fol. 444] going, to try to get away from that defect. Seventy thousand sheets went back at one time.

Q. Do you know whether or not in 1928 you bought any large stock of these large-sized pyralin sheets?

A. Well, it was in 1929, about August, when we had to return practically our whole stock of everything we had here. Then we had to take all pyralin that was available, regardless of what size it was, and I know at that time we had to take the 20 by 50 inch in greater proportions than we would have ordered had the thing run along in the natural way. I am not acquainted with the exact figures, but I just know we had to order very large quantities of 20 by 50 and paid for them, even after they had developed for us a more economical size, to get out of the hole.

Q. Were those 20 by 50 inches the large orders you gave at that time? Were they filled and the pyralin received by your company?

A. Yes.

Q. I want to turn back just for a moment to these rubber bags. Were there any clamps used on those rubber bags?

A. We used two iron bars with what we called a "C" clamp. The little "C" clamp was attached to the one iron bar and through the other end of the "C" clamp was a little bolt. The "C" clamp with the one bar was placed over the mouth of the bag, then the other iron bar was slipped on the other side of the bag, laid on the top of the bag under the "C" clamp, so that we had the bag between the two iron bars, one on each side of it, and they were pressed together by a series of little bolts that went down through the "C" clamp, and there was no way of fastening them more than to use the operator's judgment for tightening them up. They cut off the top of the bag so frequently that we had extra ends put on the bags of heavy rubber so if it was cut [fol. 445] off once, we could still use the bag and cut it off again. Every time we cut it off it would be in the autoclave with plates in it, so that it averaged twenty trips to the autoclave before the end was cut off. So it is obvious the percentage of plates that got wet just from that calculation, that practically every time you would run twenty you would get two bad ones. Now, we sent the customers a lot of glass that was wet in there and didn't show up the separation until after it got to him, and sometimes until after he got it in the car.

Q. What has your experience been with the quality of your product produced by the preliminary pressing process as compared with the rubber bag process?

A. Well, our experience with that has been very much more satisfactory. First, we didn't have to contend with any edge strain tending to cause separation; second, we didn't have to contend with any water getting in, and, third, we can maintain a good vacuum on it in pressing, and even if there isn't a vacuum on it in pressing, you can press the top and bottom to eighty pounds. It flows out into the atmospheric pressure of only fourteen pounds. We put the vacuum on to be safe in case of hollow spots in the pyralin. If the pyralin were a perfect plane and the glass a perfect plane, that wouldn't be a necessary operation at all, but none of them are. So we suck the air out to get out the little hollow spots between the pyralin and the glass.

By Mr. Christy:

Q. You mean that is in the preliminary pressing?

A. Yes, that is in the preliminary pressing. So we have eliminated a large per cent. of the cause of our difficulties.

By Mr. Smith:

Q. Take along the middle of 1930. How does your process compare as to efficiency and as to avoiding losses in [fol. 446] your product as compared to, say, the first six months of 1928?

A. Well, now, in 1930 we obtained a pressing yield of about 97 per cent.

Q. What were you obtaining back in the first half of 1928?

A. In the first half of 1928 we were doing well if we got 70 per cent., at that stage, and of course that contributed to a lot of other rejects later on.

Q. Mr. Sherts, what did you do with the defective glass that was returned to you by your customers, or with any glass that you salvaged in your operations where you would have a sheet of laminated glass with a defect along the end and you could cut it down to smaller size? What did you do with those?

A. We applied them to orders, much to our regret later on.

Q. What do you mean by that?

A. We didn't know at the time we started to cut that glass down that a large percentage of it had moisture inside and the pyralin was swollen and after it was cut down it would start again, due to the shrinkage—the same as if you put green wood in between two pieces of glass or steel. We thought if we cut off the edge, we would eliminate the trouble and have a perfectly satisfactory product.

Q. Then you had a lot more rejections from that cause?

A. They practically all came back to us again.

Q. However, whenever you cut down any of these defective pieces and sold them to your trade, was that reported in your accounting report to get on the books, just the same as in your other product?

A. Oh, yes. That was entirely separate and we accounted for every piece.

Q. If your books were properly kept, all that should appear in your accounts?

[fol. 447] A. Yes, sir.

Q. Was that true also with respect to any scrap that you sold?

A. Yes, sir.

Q. That all went into the company's accounts, did it?

A. Yes, sir.

Q. Was that true with respect to defective pyralin that was used in any way?

A. It was.

Q. In other words, as I get it, all this salvaged or rejected material was disposed of to the best advantage, as far as you could do it. Is that right?

A. Yes, sir.

Q. And the proceeds of it all went into the company's accounts?

A. Yes, sir.

Q. I show you an exhibit composed of several sheets, the first of which is entitled, "Plate Production Analysis showing plates accepted by Examiners and rejects by classification, also per cent of both." Does that title indicate the character of that exhibit?

A. It does.

Q. Is this paper that I have just handed you a transcript showing these plates accepted and rejects, as indicated in the title of the exhibit?

A. Yes.

Q. And these are figures taken off the books?

A. Taken from the books.

Q. And were these records that went into the books prepared under your supervision?

A. They were prepared by the accounting department for our working control, to give us a report of exactly what happened in each operation each day.

Q. But the basis of this were reports turned in from the factory to the accounting department, were they, or did they come into the factory themselves?

[fol. 448] A. They had men in the plant called checkers and examiners that made their report and kept the record which is handed to them and they tabulate it.

Q. And this is the result of that tabulation?

A. That is correct.

Mr. Smith: We offer this exhibit in evidence, and ask that it be marked Defendants' Master Exhibit "F."

Mr. O'Shea: Plaintiff reserves any objection to it until cross-examination.

Q. This exhibit which has now been marked Defendants' Master Exhibit "F" shows this production analysis of plates accepted and rejected by months, I believe?

A. That is correct. This first is only a half month because it was only started.

Q. The first sheet with figures is only half a month? That was from July—July 16th to July 31st?

A. That is correct.

Q. The second sheet, however, is for the full month of August?

A. That is correct.

Q. And the remaining sheets are by full months?

A. Yes, sir.

Q. Down to and including the month of April, 1930?

A. That is correct. There are two months in there that cannot be located.

Q. What months are those?

A. August and September, 1929.

Q. And there is a sheet on here which says, "Records for months of August and September, 1929, destroyed"?

A. That is correct.

Q. Do you know how they happened to be destroyed?

[fol. 449] A. Well, the new accounting department coming in some time in 1931, they destroyed some of the old records and these happened to be among them.

Q. There was no special reason that you know of for those being destroyed?

A. No. We have most all the days for that particular month that could be summed up, I believe. Most all the days. There may be some missing here and there, as there was with the rest of them. Most of these were copied from the monthly summary at that time.

Q. If there is any question, most of these could be produced right from the daily sheets?

A. Yes, sir.

Q. Let us take the month of August, 1928, on this Exhibit "F". Out here to the left are the words, "Pressing

Department. Plates accepted by examiners". Then, to the right you have columns; one headed "Plates" and one headed "Total" and one headed "Percent". Will you tell the Master what is indicated in that month with respect to the plates accepted by the examiners?

A. The examiners passed as O. K. to the edging department 75,582 plates, which was 72 per cent of the plates that came to them. They rejected 28,538 plates or 27.41 per cent of the plates.

Q. And the details of the plates that you have just said were rejected are shown under the column entitled, "Pressing Rejects", the first item being "Broken 5201"?

A. That is correct.

Q. By the way, is this exhibit prepared in square feet or in plates?

A. This is in plates.

Q. That is in number of plates?

A. That is right.

[fol. 450] Q. Now, then, lower down on that same sheet for August, 1928, you have, "Edging Department. Plates accepted by examiners". How many plates were accepted in that month by them?

A. The edging department—accepted 54,956 plates as being O. K.

Q. Or what percentage?

A. Or 87.91 per cent.

Q. Now, referring to the edging department in the month of August, 1928, how many plates were examined by the examiners of that department?

A. 54,956 plus the 7561.

Q. And how many of those were accepted?

A. 54,956, or 87.91 per cent.

Q. And how many of those were rejected?

A. 7561, or 12.09 per cent.

Q. In other words, out of the total plates examined in the edging department, 54,956 were accepted and 7561 were rejected?

A. That is correct.

Q. And does this exhibit show the detail making up the 7561 rejects?

A. It does.

Q. For example, the first item is "Let Goes 1158". That means there were 1158 plates rejected for let-goes?

A. That is correct.

Q. And without taking the time to go over the other sheets, are the other sheets of the exhibit prepared in the same way?

A. They are.

Q. Now, as I understand it, these sheets of this exhibit are not cumulative as between the pressing department and the edging department?

A. No, they are not.

Q. It doesn't mean to say on this sheet for August, 1928, that the plates which were edged and part of which [fol. 451] were rejected were a part of the same plates that were described above under the pressing department matter?

A. They don't represent the same lot of plates necessarily.

Q. They do not?

A. No. They simply represent the amount of work done in that department and the plates handled, and the plates handled in this department separately, and there is an accumulation and work in process in each department. Over a long period they check up but for monthly reports they do not.

Q. When you say "that department" you mean the pressing department is one and the edging department is another?

A. Yes, sir. So we would know just what the troubles were.

Q. Have you been familiar with these results as shown by these exhibits taken from your books?

A. Those exhibits were the basis for practically all of the work that I did and the other technical men did on the plant during the first couple of years' operation. We would look over this and see what was the chief cause of difficulties and rejections, and then attempt to eliminate it as quickly as possible.

Q. Did you, yourself, have in mind these various defects and did you, yourself, go around through the plant, beginning early in 1928, trying to run them down and eliminate them?

A. I did.

Q. And did you keep that up continuously?

A. Continuously. Got a daily report corresponding to that each day.

Q. Did you do the best you could to improve this operation?

A. The very best.

Q. And did you work long hours?

[fol. 452] A. Many times right straight through twenty-four hours without leaving the plant, and sometimes longer than that.

Q. Now, then, with this exhibit before you, I want to ask you if you will please place on the record a statement giving the names of the various kinds of defects that you encountered in this operation, in the glass and in the pyralin. Just name them. I understand that each name you will give me means a separate defect.

A. Yes, sir. 1. Separation. 2. Vents. 3. Pyralin digs. 4. Glass scratches. 5. Glass chips. 6. Bows. 7. Bulls Eyes. 8. Waves. 9. Strings. 10. Seeds. 11. Blisters. 12. Stone. 13. Ream. 14. Bloach. 15. Wrong edge work. 16. Wide seam. 17. Smudge. 18. Haze. 19. Oversize. 20. Undersize. 21. Overthickness, 9/32nds. 22. Underthickness, 7/32nds. 23. Slip. 24. Wrong trademark. 25. Burnt (bubbles). 26. Yellow. 27. Sleek (inside). 28. Lint. 29. White pyralin streaks. 30. White spots. 31. Black spots. 32. Smear. 33. Sheeter lines. 34. Hair. 35. Water-mark. 36. Pencil mark. 37. Bloom. 38. Included pumice. 39. Pyralin dust. 40. Grease. 41. Gelatin haze. 42. Short pyralin. 43. Broken plates. 44. Pyralin scratches. 45. Out of square. 46. Inside stickers. 47. Diffraction lines. 48. Light blue streaks. That is practically all of them. They name a lot of less important ones.

Q. Well, now, I suppose some of those words are self-explanatory, are they not?

A. Some are.

Q. And some you have already explained?

A. Yes, sir.

Q. By the way, you have given a number in connection with each defect. That is to say, you have given forty-eight defects in all?

A. Yes, sir.

[fol. 453] Q. For example, take bulls eyes, which you gave the number 7. That didn't mean you found seven bulls eyes in your operations?

A. No, indeed.

Q. It meant bulls eyes was the seventh category of defects. Is that correct?

A. That is correct.

Q. And so on throughout?

A. Yes, sir.

Q. I suppose the separation and adhesion are clear?

A. I didn't cite adhesion because I thought it would be difficult to explain the difference between them, although we classify them as two different things.

Q. Well, leave that out. Vents you have described?

A. Yes.

Q. And glass chips and bows are self-explanatory?

A. Bows mean the bowed plate after laminating so it won't fit into place. Bulls eye is hollow spot ground in glass trying to remove a scratch.

Q. Does it look like a bulls eye?

A. It causes a hollow spot in the glass which disturbs vision. That is an old name that comes to us through glass and is familiar to all people dealing in glass.

Q. Waves. Does that mean wavy?

A. Wavy glass and wavy pyralin. Wavy laminated glass is the result of wavy pyralin.

Q. What does strings mean?

A. A defect in glass, a bubble, we will say, drawn out long or a little piece of hard glass, like a stone, leaves a streak in the glass itself.

Q. What is seed?

[fol. 454] A. Seed is a small bubble.

Q. What is blister?

A. A larger bubble in the glass.

Q. What is stone?

A. Stone is a piece of the metal—a piece of material that came through with the glass, which was not melted and it maintains its identity as a little lump in the glass.

Q. What is ream?

A. A long streak on the glass.

Q. What is bloach?

A. Bloach is a term we developed to define a place in your plate where the pyralin didn't contact the glass, leaving a dull area.

Q. Wrong edge work and wide seams. Those are self-explanatory. I suppose the same is true about smudge, haze, oversize and undersize.

A. Smudge isn't necessarily understood. That is something that developed peculiar to safety glass. It had never been heard of in the celluloid business, but it is a peculiar mottle that develops in the celluloid due to the way the thing orientates itself, so it becomes a mottled-like haze in the laminated sheet which is originally in the pyralin sheet but could not be seen without special training until after the sheets were laminated.

Q. What is haze?

A. Haze is a general cloudy condition due to dust-like particles in the celluloid.

Q. I won't speak of oversize or undersize. Here is one marked "7/32nds of an inch." That refers to the thickness of the plate?

A. Yes.

Q. And "over 9/32nds" refers to thickness?

A. Yes.

Q. What is slip?

[fol. 455] A. It means two plates that were supposed to be put one on top of the other have slipped so they didn't register around the edges.

Q. What is burnt?

A. It means we put back in the press and tried to repress it so as to remove a defect, and in doing so overheated it to the point where the celluloid escaped, forming bubbles.

Q. Does yellow mean it was colored yellow?

A. Yes. That is the stage before it develops bubbles. If you re-press it once or twice, the celluloid begins to discolor to yellow and is objectionable.

Q. What is sleek?

A. Inside sleek means a tiny scratch on your glass which is laminated on the inside and couldn't be removed, and won't be acceptable to a customer.

Q. It is in one of the inner faces of the glass?

A. Yes.

Q. In the finish?

A. In the laminated.

Q. What is lint? Lint on the surface?

A. Lint is a difficulty that we refer to as pyralin pulling lint from the air and being coated with it.

Q. White streaks and white spots and black spots don't need any definition, do they?

A. No. That is just from a series of causes, one thing after the other.

Q. What is smear?

A. A smear is a peculiar defect in the pyralin as if finger prints had gotten against it, or in making the sheet oil or something got on the sheet, and caused it to appear as if you tried to wipe a little oil off the sheet and didn't get it all off, but it is inside your plate and causes the defect.

Q. What are sheeter lines?

A. Sheeter lines is the line that results when you cut off the sheet of celluloid from the big block. It is cut off by a [fol. 456] knife, and as this knife cuts over the block of celluloid, cutting off the sheet, it leaves a multitude of little hills and valleys in the sheet as it passes along. Sometimes it would press out and sometimes it wouldn't press out, and when it wouldn't press out naturally it is objectionable.

Q. Defect hair means——

A. From the operators. That was a troublesome thing. In the operating room it was very, very hot that summer and operators simply had hair come from their head and get between plates and caused an appreciable number of defects. We found out later on there were a certain number of people in there that were shedding, and that is what the trouble was.

Q. This was a real, substantial defect, was it?

A. Absolutely.

Q. When hair gets between the sheets of laminated glass that cannot be removed?

A. No.

Q. Did you endeavor to remedy that by making the men wear caps?

A. By making the men wear caps, and we removed the men having scalp trouble.

Q. What is bloom?

A. Bloom means a plate in which water has gotten in to the point where it causes a white, precipitated pyroxylin, which is a component in making celluloid. That is a term brought over from the celluloid industry.

Q. What is pumice—this pumice dust or powder?

A. It got between the plates. Fell off the edges sometimes when a man was laying the plates up. Sometimes a

little piece was sticking on the edge of the glass and fell off.

Q. What is pyralin dust?

A. Pyralin dust is a defect that has given a lot of trouble. It is a peculiar foreign matter in the celluloid that tends to reflect light and sparkle and cannot be seen through [fol. 457] ordinary light except when you are looking from a dark place out and have a beam of light strike it. It is something like haze, only haze is dull and this sparkles. Some of the laminating companies call it star dust.

Q. What is grease?

A. In our equipment, little particles of grease, sometimes almost invisible, which fall on the plate; but in the pressing operation a thing almost invisible would spread out and cause a reject.

Q. What is gelatin haze?

A. When you are spraying gelatin if you are not careful, there is a possibility it will co[illegible] and dry out from the time it leaves the spray gun [illegible]til it hits your plate and set up in a lot of thimbles all over the surface and wouldn't spread out. They would maintain their identity and result in a minutely spotted plate of laminated glass.

Q. Short pyralin?

A. Pyralin slipped so it didn't come out to the edge of your plates.

Q. And the defect known as "broken," and the defect called "Pyralin scratches," and the defect "Out of square." None of those need description?

A. I think not. The pyralin scratches, of course, were in the pyralin and couldn't be pressed out.

Q. What is the defect called "Inside Stickers"?

A. We called the little piece of adhesive paper used to hold the sandwich together the sticker, and sometimes our pyralin was quite wavy, so when you put the sticker around, the wave in the pyralin caused the glass to be apart a quarter of an inch, and when you put your vacuum on the sticker had to fold, and instead of folding out it would fold in, and in coming down it would either cause a break or be inside the plate so it would be rejected.

Q. What were diffraction lines?

[fol. 458] A. Diffraction lines are lines caused by the lines in your celluloid. They disappear to the naked eye, but when a beam of light strikes it, like a headlight coming

from an automobile, it causes a diffraction grating and makes the approaching headlight appear like a strong searchlight pointing to the sky, upward and downward from its source. An intolerable condition from a driving standpoint and one that gave us a great lot of rejections and a lot of trouble.

Q. Glass finished spoiled.

A. I didn't mention that.

Q. Light blue streaks. Was that in the pyralin?

A. Light blue streaks was in the pyralin, as if the color wasn't worked out completely.

Q. I will now ask you to turn your attention just for a moment to Defendants' Master Exhibit "F," and I ask you to state whether or not in your opinion the difficulties that you had in developing this process and in making this glass which you have described to the Master, whether or not those difficulties were sufficient in your opinion to account for the rejects that are shown in this exhibit?

A. They were, absolutely.

Q. And in point of fact they did?

A. They did. There are some in that exhibit that are not mentioned in this list. You will find a few marked that are not shown on here.

Q. That is, there are some defects that are in the Defendants' Master Exhibit "F" that are not included in this category you have just given us?

A. Yes. They would be minor classes.

Q. Mr. Sherts, have you here in the Master's presence the original reports from which this Exhibit "F" has been made up?

A. I have.

Q. And they are tendered to the other side for examination if they wish?

A. Yes.

[fol. 459] By Mr. Christy:

Q. Including the daily reports?

A. Yes.

By Mr. Smith:

Q. How many years' experience have you had in connection with the practical operations of plants in the manufac-

ture of celluloid and in this laminated glass manufacture altogether?

A. Since February, 1919, to the present day.

Q. You have been giving your entire time in business hours to that work?

A. I have.

* * * * * * *

Q. When you made these moves was your department operating under the stress of being obliged to fill actual orders on your books?

A. It was.

Q. Were or were not these moves made in the attempt to improve the operations of the plants?

A. They were made to improve operating conditions so we could reduce our losses.

Q. When you began to work up there in this plant, in the early part of 1928, how many men approximately were employed?

A. About half a dozen.

Q. Then do you remember about when you began to operate on the Fisher Body orders?

A. I believe about the latter part of May, 1928.

Q. Well, shortly before, say a month before you began on those orders do you remember how many men you were employing?

A. We had approximately twenty.

Q. And say a week or so before beginning these orders how many?

A. Probably fifty.

[fol. 460] Q. And how many men did you have to employ when you got running full on these automobile orders?

A. By the end of June, as I recall, we had approximately five hundred.

Q. That was June, 1928, was it?

A. Yes, June, 1928. We went beyond that, as I recall, several hundred more, at the high point—probably seven hundred—but the big jump was from the beginning of June to the end of June where we took on approximately four hundred and fifty men, as I recall.

Q. Using your experience as a practical operating man, will you tell the Master whether or not it was a difficult operation to step up your labor force to that extent?

A. With a new industry and not being able to pick any men with experience in this laminating or in the new industry, and without at least a skeleton crew of men trained in the technique, it was a most difficult situation and almost impossible to get organized in a way that we usually think of an organization.

Q. Now, you have spoken about your step up in labor. What step up in production did you make in this short period of time? I mean comparing immediately before you began on these Fisher Body orders as compared with the ttime after you began.

A. Well, we had been producing approximately 150 plates a day before we started on this contract business, and afterwards we had to get up to a production of approximately 5000 plates a day some days in order to meet shipments of approximately 4000 plates a day.

Q. Were you called upon to make shipments of 4000 plates per day?

A. Yes.

Q. Will you tell the Master from your experience as a practical man whether or not that is a difficult operation to perform, to step up your production that way with a new industry?

[fol. 461] A. In my opinion it is almost a miracle; beyond any estimate of what is humanly possible.

Q. In order to produce these 4000 plates per day, state whether or not you had to process more plates than that in order to get that output.

A. I remember distinctly that it became practice with us to order 20 per cent. more glass than was required on the order, knowing the terrific losses that we were incurring, and at the time we were forced to produce approximately 4000 a day we were actually bagging and pressing approximately 5000.

Q. What happened to the difference between the 5000 and 4000?

A. That represented rejects, as is shown in these figures submitted by the accounting department.

Q. One of the items claimed as an expense item by the Duplate Corporation in this accounting is a commission paid to the Pittsburgh Plate Glass Company. Was there any selling expense to the Duplate Corporation other than that commission?

A. Not that I know of.

Q. In your experience as a practical operating man, is it or is it not the practice to pay either a commission or some other selling expense?

Mr. O'Shea: I object to that on the grounds that it calls for a conclusion. I think we all know some selling expense is necessary to sell goods.

The Master: We will hear it subject to your objection, Mr. O'Shea.

Mr. O'Shea: Exception.

A. It is the practice to pay a commission or some selling expense.

Q. Do you know what commission was paid to the Pittsburgh Plate Glass Company?

Mr. O'Shea: That is already in the record.

[fol. 462] Q. (Continued.) Mr. O'Shea has called my attention to the fact the record in this case already shows the Pittsburgh Plate Glass Company received a commission first of five per cent. and later of three per cent. on the product sold by it for the Duplate Corporation. Will you state whether or not in your opinion, as a practical man, that was a reasonable commission to be paid for selling expenses?

Mr. O'Shea: Same objection, calling for a conclusion.

The Master: We will receive it subject to the objection.

Mr. O'Shea: Exception.

A. In my experience it would seem to be a very reasonable selling expense.

Q. If you had not availed yourselves of the selling organization of the Pittsburgh Plate Glass Company, what would you have had to do to sell your own product?

Mr. O'Shea: Same objection.

The Master: Same ruling.

Mr. O'Shea: Exception.

A. We would have had to organize our own department and maintain it.

Q. Would that have been an expensive proposition?

A. It would have been.

By Mr. Christy:

* * * * * * *

Cross-examination.

By Mr. O'Shea:

Q. Just a question or two on this original record from which Defendants' Master Exhibit "F" has been taken. [fol. 463] These records in this book are an original record of the Duplate Corporation?

A. They are, yes, sir.

Q. And they are the daily reports to you?

A. Daily reports, and then at the end of the month there is a summary for the month in most cases.

Q. Is that summary for the end of the month what is known in your organization as Schedule "J"?

A. No.

Q. These Schedule "J's", which have been marked in evidence here as Master Exhibit 8 for identification, differ from the original records from which Defendants' Master Exhibit "F" have been taken. Is that correct?

A. The Schedule "J" is in feet and this is in plates. This was not an accounting used in the accounting footage.

Q. But your accounts were kept on the basis of footage?

A. Yes, sir.

Q. And do these sheets, Master Exhibit "F"; check up with Schedules "J" except that one is stated in plates and the other is stated in feetage?

A. I would say they do.

Q. You are sure of that?

A. You would have to ask the accounting department.

Q. You don't know then whether they do check up or not? Is that it?

A. Not that they check up absolutely; in general they do.

Q. They ought to in general in your opinion?

A. Yes, sir; very, very close.

Q. Now, these sheets contained in Master's Exhibit "F" do not contain all of the rejects from the beginning to the very end of the process, do they?

A. They contain our plate rejects.

[fol. 464] Q. These sheets seem to start with the pressing department.

A. That is correct.

Q. There were rejects then——

A. Glass and pyralin rejects. This is Duplate—laminated.

Q. This has to do only with Duplate or laminated, under the definition of Duplate or laminated arriving at that character of glass in the pressing department?

A. Yes, sir.

Q. So there were other rejects than these which would be included in Schedule "J"?

A. Yes, sir. That does not include the customers' returns.

By Mr. Smith:

Q. What does not include the customers' returns?

A. Exhibit "F" does not include the customers' returns.

By Mr. O'Shea:

Q. This Master Exhibit "F" is not set forth in dollars and cents?

A. No, sir.

Q. And is it tied in with any controlling records at all of the Duplate Corporation? Do you understand what I mean by "tied in"?

A. You mean with the accounting records they show in form "J"?

Q. Yes.

A. I think not.

Q. But it is taken from a supplemental record of the Duplate accounting system?

A. Production.

(Adjournment taken until Tuesday, February 9, 1932, at 11 o'clock A. M.)

[fol. 465] Pittsburgh, Pennsylvania, Tuesday, February 9, 1932.

Met pursuant to adjournment.

Present: G. Dixon Shrum, Esq., the Master; Ambrose L. O'Shea, Esq., of counsel for the plaintiff; Marshall A.

Christy, Esq., William Watson Smith, Esq., L. E. Hickman, Esq., counsel for the defendants.

COLLOQUY

Mr. Smith: If the Master please, Mr. O'Shea had started with just three or four questions on cross-examination, and we discover that we have forgotten to ask Mr. Sherts a number of questions we should have asked him, and if it is agreeable to you and to Mr. O'Shea, if Mr. O'Shea will suspend his cross-examination now, we will go ahead with the direct examination and then Mr. O'Shea can resume his cross-examination.

The Master: That is perfectly agreeable.

Mr. O'Shea: I wish to file two additional objections to the report as follows:

ADDITIONAL OBJECTIONS TO DEFENDANTS' ACCOUNT

18. Plaintiff objects to the inclusion in "Defendants' Statement of Account" of the cost items credited to the defendants and charged against the plaintiff for glass, for the reason that included in such amounts charged for glass is a profit which accrued to the co-defendant and joint infringer, Pittsburgh Plate Glass Company.

19. Plaintiff objects to the inclusion in "Defendants' Statement of Account" of the cost items credited to de- [fol. 466] fendants and charged against plaintiff for pyralin, for the reason that included in such amounts charged for pyralin is a profit which accrued to du Pont Viscaloid Company.

Mr. Smith: Defendants object to these additional objections numbered "18" and "19", for the following reasons: first, because they are generally incompetent and irrelevant; second, because they are not warranted under the pleadings in the case; third, because they are not warranted under the decrees in the case; and fourth, because they were not taken until after the plaintiff had closed its prima facie case.

The Master: These items will be included for the present, subject to Mr. Smith's objection.

Mr. Smith: Exception, please.

Mr. O'Shea: In connection with these objections, I call to the Master's attention the prayers of the supplemental bill of complaint and the interlocutory decree entered thereon, and particularly, with respect to Clauses 3 and 4, and in connection with Clause 4 of the interlocutory decree, the plaintiff calls the Master's attention to the fact that the Master is directed therein to call upon the Pittsburgh Plate Glass Company to account for all "profits, gains and advantages which it, the said Pittsburgh Plate Glass Company, has received or which have accrued to it from the said infringement upon the exclusive rights of the plaintiff under Claim 12 of said Letters Patent, and also the damages which the plaintiff has suffered because of said supplemental defendant's infringement upon Claim 12 of said Letters Patent of the United States, No. 1,182,739." The plaintiff, therefore, in accordance with said supplementary [fol. 467] decree, now requests the Master to call upon the supplemental defendant, Pittsburgh Plate Glass Company, to file an account showing what, if any, profits it has made in carrying on this infringing business.

Mr. Christy: I think it necessary to precede the objection which I am about to make by a statement of fact.

At the conclusion of the taking of the testimony for the plaintiff on this accounting last June, it was substantially understood between the plaintiff's counsel and myself that, subject to a review by counsel at his leisure of the testimony that had been taken, the prima facie proofs on behalf of the plaintiff had been completed, and it was further understood that I should be prepared to proceed with the proofs in defense during the month of September, and that on my having a meeting set for that purpose plaintiff's counsel would formally close his prima facie proofs.

I had prepared to proceed, in large part, although not completely so, when the plaintiff filed its supplemental bill bringing in the Pittsburgh Plate Glass Company as a party defendant. Considering that this changed the situation, I told the Master, and I believe wrote to plaintiff's counsel, that the situation had so changed that I did not consider that the defendant should proceed with its proofs until the matters raised by the supplemental bill had been disposed of. This was done by the decree entered on December 5th last. Then, in connection with further procedure, I received

a letter from plaintiff's counsel dated December 28, 1931, which I am sure he will allow me to insert at this point:

[fol. 468] "December 28, 1931.

Marshall A. Christy, Esq., Farmers Bank Building, Pittsburgh, Penna.

DEAR MR. CHRISTY:

I wish to apologize for the delay in replying to your letter of December 16th but I have been tied up in the preparation and trial of a case in our District and this is my first opportunity to answer.

As I recall the last hearing, it was that you were to fix a date for the taking of your testimony and that at the beginning of the next hearing I would close my case. So far as I know now, I will have no further testimony to put in. Therefore, it is for you to determine when the next hearing shall be, subject of course to my feeling that it ought to be within the very near future and at the very latest, some time in the month of January.

It does seem to me that there has been time enough to synchronize the witnesses of the Pittsburgh Plate Glass Company for a definite date. In any event, I desire exceedingly that you do now fix a definite date for the next hearing at which time I will close my case and I shall expect you to proceed with the taking of your testimony.

Wishing you the compliments of the Season, I remain

Yours very truly, Ambrose L. O'Shea."

Under this urgency, I proceeded to complete, so far as I could, the preparation of defendants' proofs when it was decided, with great pleasure on my part, that I should have [fol. 469] the assistance of Messrs. Smith and Hickman. This necessarily delayed matters for a short time, and proofs were finally commenced, as the record shows, on January 27, 1931. At that meeting, more than a month after the decree had been entered upon the plaintiff's supplemental bill, the plaintiff definitely closed its prima facie proofs.

I therefore object to the request at this time for the reason that plaintiff, being fully advised in the premises, did definitely close its prima facie proofs under both decrees

on January 27th. Defendants have prepared their case to meet proofs made, and it is submitted that plaintiff should not be allowed at this time to practically reopen its case and proceed to take further prima facie proofs on this account. Defendants certainly had a right to rely upon the action of plaintiff's counsel in closing his prima facie proofs at the time he did.

Mr. O'Shea: In connection with Mr. Christy's statement, first with respect to the filing of the exceptions, the Master's attention is called to the original exception No. 17, where the plaintiff reserved the right to file further objections from time to time during the hearing as it may be advised are necessary or proper in view of the testimony that may be adduced at such hearings.

It is the recollection of counsel for plaintiff that at the closing of testimony on June 10, 1931, the understanding was that plaintiff's case had not then been closed but that at the convenience of counsel for defendant, when and as he should find it convenient to himself to proceed with his testimony, that plaintiff should have the right to introduce such additional testimony or exhibits as it might deem desirable and proper, but that it was the opinion of counsel [fol. 470] for the plaintiff at that time that there would be no further oral testimony given on behalf of the plaintiff.

At the resumption of the taking of testimony on January 27, 1932, counsel for plaintiff offered in evidence as a part of its case the supplemental bill of complaint and the answer thereto, the order allowing the filing of said supplemental bill of complaint and the interlocutory decree entered by the Court on such supplemental bill of complaint and answer. That interlocutory decree gives specific directions to the Master, and it is not plaintiff's understanding that the account now called for from the Pittsburgh Plate Glass Company is a part of the prima facie proof of the plaintiff, but is an additional pleading which the District Court has called upon the Master to ask for.

Mr. Christy: Then why did you not ask for this order before you closed your prima facie case?

Mr. O'Shea: The decree speaks for itself. It seems to me that it does ask for this order.

Mr. Christy: Mr. Master, I object for the reasons stated.

Before making any further objection, I would ask of plaintiff's counsel the nature of the statement to be made

by the Pittsburgh Plate Glass Company for which he asks. The statement already filed by the defendant, Duplate Corporation, shows on its face that no profits have been gained from the infringing business. Accepting this statement as we must, for purposes of the present application by the plaintiff, and in order to save time, I think we should be enlightened as to the character of the statement which he desires. That is to say, if the statement already made [fol. 471] shows no profits at all, I do not see exactly what further statement on that subject he desires.

Mr. O'Shea: It seems to counsel for plaintiff that the supplemental interlocutory decree on the supplemental bill is specific as to what the Pittsburgh Plate Glass Company is called upon to do. However, counsel, as a courtesy to Mr. Christy and in answer to his specific question, now states that since the interlocutory decree in the supplemental bill finds the Pittsburgh Plate Glass Company to be a joint infringer with the Duplate Corporation, as stated in Clause 1 of said interlocutory decree upon the supplemental bill, and since the Pittsburgh Plate Glass Company, as is evident from the account heretofore filed and marked "Defendants' Statement of Account," has supplied its joint infringer, Duplate Corporation, with large quantities of plate glass from which it is apparent that it has derived a profit, which profit was charged in its selling price to its joint infringer, Duplate Corporation, the plaintiff's request is to the effect that the account now to be filed by Pittsburgh Plate Glass Company show whatever profits it, the Pittsburgh Plate Glass Company, made from the sale and delivery of such large quantities of plate glass to its joint infringer, Duplate Corporation.

Mr. Christy: I now renew my objection to the reopening of the case at this time for the purpose stated. I repeat the objections made by Mr. Smith at the outset to the first statement of my opponent. I make the further objection:

The Pittsburgh Plate Glass Company has been held by the decree, as has been just stated by my opponent, as a joint infringer with the Duplate Corporation, and therefore as principal infringer. My opponent now seeks to hold it, [fol. 472] not as a principal infringer, but only as a contributory infringer. It cannot well be both. Having been charged by the supplemental bill and found by the decree to have been a principal infringer, the plaintiff is not en-

titled to the additional accounting claimed by the eighteenth and nineteenth objections now sought to be added.

(Recess taken until two o'clock P. M.)

Afternoon Session

(Arguments by counsel.)

Mr. Smith: If the Master please, before the Master reaches a decision upon this important question, we think you should have before you, in a very brief statement of a single witness, the facts with respect to the ownership of the raw materials going into the production of plate glass by the Pittsburgh Plate Glass Company.

We, therefore, offer to prove that the plate glass is made mainly, as I understand it, from three articles: first, soda ash; second, sand; and third, lime. That all three of those commodities are, in themselves, marketable commodities in the form in which they exist before they are put into plate glass at all, and that the Pittsburgh Plate Glass Company, either directly or indirectly, owns the soda ash, sand and lime which go into this product.

Mr. O'Shea: If you tell me it is a fact, I will admit it.

Mr. Christy: Yes, that is a fact.

STIPULATION

It is stipulated between counsel for the parties that the facts with respect to the soda ash, sand and lime, and the [fol. 473] ownership thereof by the Pittsburgh Plate Glass Company, either directly or through the form of 100 per cent. ownership in a subsidiary corporation, are correctly stated by the offer on the record.

Mr. O'Shea: Counsel for plaintiff admits those facts as recited and referred to in the stipulation, except that he reserves his right and now objects to the materiality of those facts.

(Discussion off the record as to taking of further testimony at this time.)

Mr. O'Shea: Counsel for plaintiff objects to the adjournment of the taking of the testimony on the phases of the account that are already before the Master pending filing

of briefs and the determination of this law point which is now raised, namely, with respect to the Pittsburgh Plate Glass Company's responsibility for the profits it received and charged against the plaintiff, and in that respect states that it seems to him that the testimony might well proceed on the phases of the accounting which already raise a direct issue between the parties.

Mr. Smith: If the Master please, we assume that it is conceded in this case that one-eighth inch plate glass and pyralin sheets such as were used here were both marketable products at the time of this alleged infringement. If that is not a fact, we desire to prove it, which we can do in a minute.

Mr. O'Shea: We do not admit that.

(Adjournment taken until Wednesday, February 10, 1932, at 10:30 o'clock A. M.)

[fol. 474] Wednesday, February 10, 1932.

Met pursuant to adjournment.

Counsel present as before.

H. B. Higgins, a witness produced on behalf of the defendants, having been duly sworn, testified as follows:

Direct examination.

By Mr. Smith:

Q. Mr. Higgins, where do you live?

A. In Pittsburgh.

Q. And are you an officer of the Pittsburgh Plate Glass Company?

A. Yes.

Q. What office do you hold?

A. Vice-president.

Q. And how long have you been vice-president?

A. About four years.

Q. Were you connected with the company before that?

A. Yes.

Q. In what capacity?

A. General salesmanager.

Q. How long were you general salesmanager?

A. About ten or eleven years.

Q. Before you were general salesmanager were you in the sales department?

A. I was manager of the warehouse at Kansas City.

Q. Over what period of years have you been connected with the Pittsburgh Plate Glass Company in these various capacities—approximately?

A. About twenty-seven years.

[fol. 475] Q. Do you know the product which has been described as plate glass one-eighth of an inch thick?

A. Yes.

Q. Will you please tell the Master whether or not on January 1, 1928 and continuing through the accounting period, which runs to June 1, 1930, plate glass one-eighth of an inch thick was a marketable product?

A. Yes.

Q. During what period of time prior to January 1, 1928, had the Pittsburgh Plate Glass Company been making plate glass one-eighth of an inch thick?

A. We have always made it.

Q. As long as you have been connected with the company?

A. As long as I have been connected with the company.

Q. State whether or not during this accounting period and prior thereto there was a substantial demand for this product.

A. Yes, there always has been a substantial demand for one-eighth inch. One of the first experiences I had in selling was in Minneapolis warehouse, probably 1908 or 1909, when I sold one-eighth inch plate to the Twin City Rapid Transit Company for use in their street cars. It has always been used in quite large quantities for mirrors, in show case doors, in book cases like that. (Indicating.)

Q. Like these here?

A. Like these here. That doesn't happen to be plate glass. In toilet mirrors, vanity cases, small ovals that you may often have seen and small circulars set in pyralin and sometimes in ivory; in glazing operations it is used extensively and always has been.

Q. What do you mean by "glazing operations"?

A. Glazing buildings.

[fol. 476] Q. Do you mean putting in windows?

A. Yes, putting in windows.

Q. Had this plate glass one-eighth inch thick any advantage in glazing operations?

A. Yes, in certain types of operations it has quite an advantage. Wherever the quality of plate and the reflection from the surface of plate is desired but weight is important. It requires, of course, just half the counter-weight; consequently, it can be used with a smaller box frame in a double hung window, and is particularly advantageous in casement windows which are hung on one side and swung open. The light of glass does not exert such a strain on the sash, and in time heavy plate glass will spoil a window sash that is glazed as a casement window.

Q. How thick was the heavier plate glass that was used in plate glass windows?

A. One-fourth of an inch was the standard thickness.

Q. There has always been, I suppose, a large market for that?

A. Yes, that is the standard thickness and always has been. That is the thickness you see on store fronts.

Q. As compared to that, this one-eighth inch thick glass would be just half as heavy?

A. Half as heavy.

Q. What about show cases? Have you used it in that?

A. It has been used always on the backs of show case doors, which are usually glazed with mirrors. The frame of the show case is light, of course, and consequently a heavy light of plate glass is not satisfactory there. The Pennsylvania Railroad has always within my recollection used it exclusively in all their passenger cars, and there has never been a year that we have not sold them large quantities whenever they were building new cars or quantities [fol. 477] for replacements—take care of their breakage. The New York Central have also used it.

Q. Have you sold to the New York Central?

A. I think we have. I am speaking from general recollection. At one time different railroads specified it for their cars, and there again the weight of the sash in which it was glazed determines the thickness of the glass. You will find, if you look at a street car when you go outdoors, the front end of all street cars in Pittsburgh is glazed with one-eighth inch plate glass.

Q. During what time has this demand for one-eighth inch plate glass existed on the part of the railroads? How far back?

A. Farther back than I can remember. I came to Pittsburgh in 1917, and it was a large business then and existed prior to that time.

Q. When did you adopt your present process of making one-eighth inch thick plate glass at Creighton?

A. The plant was started in 1924.

Q. Do you know when it went in operation?

A. It began operation that year.

Q. And do you still follow the same process in that plant for making one-eighth inch plate glass?

A. Yes.

Q. Can you tell the Master what your production of one-eighth inch plate glass was for some years prior to 1928? You can use that memorandum.

A. I don't think I have anything prior to 1928, Mr. Smith—Yes.

Q. Beginning with the year 1927, will you please tell the Master what the production of one-eighth inch plate glass was by the Pittsburgh Plate Glass Company in each year down to 1931, inclusive?

A. In 1927, it was 1,858,323.

[fol. 478] Q. Start in 1926.

A. 1926 was 1,161,828 feet; 1927, 1,858,323; 1928, 9,791,534; 1929, 11,591,203; 1930, 10,214,250; 1931, 9,012,215.

Q. Now, Mr. Higgins, this accounting period ran from January 1, 1928, to May 31, 1930. That is two and one-half years about. As I got those figures, your production of one-eighth inch plate glass during that accounting period was approximately twenty-five million square feet. Is that right?

A. That is approximately correct.

Q. Now, a certain amount of that in that accounting period was used by your own company in making laminated glass?

Q. What happened to the rest of it?

A. It was sold to our warehouses, jobbers, mirror manufacturers—to the trade in general who could use it.

Q. Now, of that production in the accounting period of about twenty-five million square feet, would you tell us, in your opinion, about how much of that in feet was sold actually to customers—not merely kept on stock somewhere?

A. I should suppose 95 per cent. perhaps—90 per cent. It is hard to tell.

Q. You could not keep a stock of glass like that in stock?

A. No. Of course, we made it to sell, not keep, and some of it probably was in stock at the factory warehouse; some was shipped to our jobbing warehouses in stock, but, of course, the great quantity of it was actually sold to buyers.

Q. And you think 90 per cent. of it was so sold?

A. I would consider it.

Q. Now, did your company ever feature the sale of one-eighth inch plate glass by advertising it?

[fol. 479] A. Yes.

Q. When was that?

A. That was in 1928—in the fall.

Q. And do you remember how much money you spent for that purpose?

A. We appropriated $25,000 for advertising one-eighth inch plate.

Q. Prior to this accounting, was one-eighth inch plate glass quoted in your price list to customers?

A. Yes.

Q. Do you remember whether it was quoted higher or lower than other glass?

A. It was for a long period quoted at 15 per cent. above the quarter-inch price; gradually the price came down after we started to make it at Creighton, and for the last four years—I suppose five years—it has been quoted at the price of quarter-inch, but for many years there was a standard premium of 15 per cent., and it was generally quoted in our price lists.

Q. Your improved process at Creighton allowed you to reduce that price?

A. Yes.

Q. Now, outside of your own production of glass here in the United States, was there any market in one-eighth inch plate glass that was imported from abroad?

A. Yes, there was a large market.

Q. How large did that market run, approximately, back in the early 90's?

A. From three to five million feet a year.

Q. Of one-eighth inch plate glass?

A. Yes.

Q. And that was imported from abroad and sold here?

A. Sold in the United States.

Q. Did other American companies besides the Pittsburgh Plate Glass Company, during this period you have spoken [fol. 480] of, make and sell one-eighth inch plate glass?

A. Yes.

Q. It was a recognized marketable commodity, as I understand your testimony?

A. Recognized, marketable commodity, and carried in stock by jobbers and daily bought and sold.

Cross-examination.

By Mr. O'Shea:

Q. Mr. Higgins, the standard practice in automobile production was to use one-fourth inch plate glass prior to 1926, was it not?

A. One-fourth and three-sixteenths.

Q. One-fourth and three-sixteenths was the standard practice?

A. That is correct.

Q. Do you recall from your memory whether you sold any one-eighth inch plate glass to any of the automobile manufacturers for use as windshields or windows of their cars?

A. I don't think so.

Q. You think you did not sell any?

A. I think not.

Q. There was no sale of one-eighth inch plate glass then to the automobile industry to the best of your recollection?

A. No. That is correct. I think, Mr. O'Shea, that there was probably some glass sold to curtain manufacturers, where a thin plate was wanted in the rear light of an open car, but generally speaking the demand from the automobile trade was not for one-eighth inch glass.

Q. The standard demand was for one-fourth or three-sixteenths.

A. Yes.

[fol. 481] Q. Your company sold quantities of this standard one-fourth or three-sixteenths plate glass to the automobile manufacturers of the United States, did they not?

A. Yes.

Q. Considerably greater in volume in 1926 than the 1,161,828 square feet of one-eighth-inch plate glass that you testified was sold on the market generally for other purposes than automobile?

A. You mean the volume from automobile manufacturers was greater than that?

Q. Yes.

A. Very much.

Q. And that is true as to 1927, namely, that the volume sold to automobile manufacturers—volume of one-fourth and three-sixteenths plate glass sold to automobile manufacturers—was much greater than the volume that you testified with respect to the one-eighth-inch plate glass, which amounted in 1927 to 1,858,323?

A. Yes.

Q. The same condition was true, was it, with respect to 1928?

A. Are you asking me now, Mr. O'Shea, about our sales to the automobile manufacturers or the consumption of glass?

Q. I am asking you about your sales first.

A. I would have to check up to see just what we did sell to the automobile manufacturers in '28 to answer that.

Q. Is there any doubt in your mind that the volume of sales of one-fourth-inch plate glass in 1928 fell off sharply?

A. To the automobile manufacturers?

Q. To the automobile manufacturers.

A. I would want to look at the records to answer that, if I get your question.

[fol. 482] Q. I will repeat my question to see if you did get it. Is there any doubt in your mind but the one-fourth-inch size plate glass sales to automobile manufacturers fell off sharply in 1928?

A. As compared with '27?

Q. Yes, as compared with 1927.

A. I should have to look at the records to answer that.

Q. It is a fact, is it not, that the automobile manufacturers began to demand from your company this laminated glass in 1928?

A. No.

Q. Didn't you sell a considerable amount of laminated glass in 1928 to the automobile manufacturers?

A. Yes, we sold some, but the automobile manufacturers were not demanding it. We were trying to sell it to them. There was no demand for it at that time.

Q. They gave you orders for it, did they not?

A. We worked for some orders and sold some glass, but

there was no demand, Mr. O'Shea, for laminated glass in 1927 and 1928.

Q. I am talking about 1928.

A. In 1928 there was no demand for laminated glass.

Q. But the fact is your records here show that you sold some 1,181,147 feet in 1928?

A. Yes.

Q. You actually sold that to the automobile manufacturers, according to your record?

A. If that is what the record shows.

Q. We will assume that is what the record shows. And yet you say there was no demand for this?

A. In the ordinary sense, there was no demand for that glass. We were undertaking to sell it. There was opposition to it. The automobile manufacturer did not want to put it in and we were making sacrifices trying to sell it. I [fol. 483] am merely trying to avoid any misapprehension concerning your question and my answer to it. We were selling glass but there was no popular demand for it from the automobile manufacturers, and I think you will find, if you go back in that record, that a great percentage of that business was sold to the Cadillac and La Salle—to one automobile manufacturer.

Q. You were selling to Chrysler in 1928, were you not?

A. For a short time before they dropped it.

Q. When did they drop it?

A. Shortly after they started to use it, because there was no demand for it.

Q. When did they start to use it?

A. I wouldn't want to say, Mr. O'Shea, but I imagine some time in 1928 or 1929.

Q. Your records show you were selling it to the extent of 54,000 square feet a month in the month of November to the Chrysler Corporation.

A. Will you follow that along and see what it says in subsequent months?

Q. Is it not a fact that in November, 1928, you sold to the Chrysler Company 54,712 square feet?

A. I am sorry my memory isn't good enough to corroborate that.

Q. Is your memory keen enough to enable you to remember whether you sold to the Hudson Company in November, 1928?

Mr. Smith: I suggest, Mr. Master, it is hardly fair to examine the witness on figures without showing him the figures.

Mr. O'Shea: You examined him on figures without showing him the figures.

Mr. Smith: He had a memorandum in his pocket. Show him those figures if you want to examine him on them.

[fol. 484] (Statements handed to witness.)

Q. (Question read.)

A. Yes.

Q. Selling in that same month to the Studebaker Company, were you not?

A. Yes.

Q. The fact is, is it not, that you were selling through 1929 to those same companies?

A. The facts are, Mr. O'Shea, that some of this business we got and some of it we lost, and I really don't remember the details sufficiently to answer your questions. I will be glad to go through the records and answer them.

Q. Are you familiar as to whether there was a demand for laminated glass in 1929 from your company by the automobile manufacturers?

A. Not generally there was not.

Q. Does your memory enable you to determine whether or not you sold some 2,301,771 square feet in 1929?

A. Whatever the records show.

Q. Well, can you tell whether that is approximately correct or not?

A. I would think it might be.

Q. And yet you say there was no demand for this glass by the automobile manufacturers in those years?

A. In the ordinary sense of the word, there was not a demand by the automobile manufacture trade. We were undertaking to introduce this product with the automobile manufacturers in the face of their opposition, and it would not be correct to say that there was a demand from the automobile manufacturers.

Q. What is your definition of a demand in the ordinary sense, Mr. Higgins?

A. A demand I would consider to be a call by the ultimate consumer for the product.

[fol. 485] Q. Well, if they give orders, isn't that a call for the product?

A. Not in the sense I mean. The buyers of automobile manufacturers, Mr. O'Shea, were not asking the automobile manufacturers to supply cars with laminated glass. That is the point I want to bring out. The buying public were not, as the advertising men say, conscious of laminated glass. They didn't ask for it when they went to buy an automobile; consequently, the automobile manufacturers saw no sales advantage in using it. So that is why I say there was no demand for it.

Q. Well, just how can you tell the buyers were not demanding it?

A. That was my business to know.

Q. How did you make yourself acquainted with that fact?

A. Through our own organization and through my conversations with the automobile manufacturers.

Q. Well, if that be so, if the buyers were not demanding it, how was it possible for you to sell between three and a half and four million of this laminated glass in the years 1928 and 1929?

A. We succeeded in persuading a few manufacturers that it might be an advantage to them to put it in their cars and that it might have an appeal.

Q. Just how did you persuade them?

A. By talking the arguments, by giving them the advantages of it, and sometimes by giving them an attractive price.

Q. Now, the La Salle and Cadillac cars had it as standard equipment in 1929, did they not?

A. Yes, they did.

Q. Did the Studebaker have it as standard equipment in 1929, do you recall?

A. I think they did in windshields only.

[fol. 486] Q. Have any other automobile manufacturers you sold it to had it as standard equipment in the years 1928 and 1929?

A. Chrysler Company put it in their more expensive models, and I think used it for three or four months and then abandoned it because they said there was no advantage to it and it was not worth the price they were paying for it. I think the Studebaker Company did keep it in a few months in one or two of their high price models, and I believe Hudson kept it in windshields. Studebaker also in windshields.

Q. How about the Pierce Arrow?

A. I think Pierce Arrow adopted it about the time the Lincoln did.

Q. Do you remember when that was?

A. That was following the use of it by the Cadillac Company. Our sale to the Cadillac Company was the first sale that was made of standard equipment to an automobile manufacturer who produced in quantities, and following the adoption of laminated glass by the Cadillac Company other manufacturers of high-priced cars also started to use it. That was the reason we quoted an attractive price to the Cadillac Company, because we felt it would force other manufacturers to adopt it.

Q. Well, the Ford Company had it as standard equipment prior to 1928 in the windshields?

A. Yes, Ford used the window glass shield.

Q. Laminated glass?

A. It was laminated glass.

Q. Standard equipment for the windshields?

A. For the windshields.

Q. The Lincoln Company also had it in 1928?

A. After the Cadillac.

Q. I say in the year 1928.

A. I couldn't answer that.

Q. How do you know it was after the Cadillac?

[fol. 487] A. Because I have already said, Mr. O'Shea, that no manufacturer, prior to the time the Cadillac Company adopted it, was using laminated glass as standard equipment except the Ford Motor Company, who put it in the windshields of their car, but the Cadillac Company and the LaSalle adopted it throughout in all body types, and following the introduction of it by the Cadillac Company other manufacturers of high-priced cars also began to use it.

Q. Now, this one-eighth-inch plate glass that your company manufactured prior to 1928. You state that was for mirrors?

A. Oh, miscellaneous.

Q. Some of it was for mirrors?

A. Yes.

Q. That would be small pieces of glass, would it not?

A. Well, larger than used in an automobile. Perhaps up to seven square feet or perhaps ten square feet. Generally nothing over ten square feet.

Q. But the bulk of it was small pieces of glass, was it not?

A. What do you mean by "small"? That is a relative term.

Q. Something, say, under three feet.

A. Oh, no.

Q. The bulk of it was larger than that?

A. Yes.

Q. Was this one-eighth-inch plate glass that you marketed prior to 1928 suitable for use in making laminated glass, do you know?

A. Why, I think so. We were selling it to those who were in the laminated glass business at that time.

Q. Who was that?

A. Saftee Glass Company, Philadelphia, used it, and I don't remember whether Indestructo started or not.

[fol. 488] Q. Indestructo was in business at that time.

A. Then they were using it.

Q. Did they buy from you?

A. Yes.

Q. Have you any records showing the sale of this one-eighth-inch plate glass to Saftee and Indestructo prior to 1928?

A. I think I could find a record.

Q. Will you be good enough to produce those records?

A. I will be glad to.

Q. Were you present at a conversation in 1925 at which Mr. Nelson Edwards and Captain Brown and Mr. Wherrett were present possibly, at which Mr. Edwards and Mr. Haskell requested your company to sell to them one-eighth-inch plate glass? Do you recall whether you were present?

A. I do recall the conference, Mr. O'Shea, but whether it was in 1925 I don't know.

Q. Some time prior to 1928, though?

A. Yes, that is quite right.

Q. And was the subject of that conference to endeavor to get Pittsburgh Plate Glass Company to sell Triplex Company one-eighth-inch plate glass?

A. My recollection is that Mr. Edwards and Mr. Haskell wanted to determine what one-eighth-inch plate glass might be available and about what the cost would be in case they went ahead to organize a company to manufacture, and we discussed the quantities that might be available, as I recollect it, and the price that might be expected.

Q. Well, was not the main subject of that conference to determine whether they could purchase it from you—whether you had it available?

A. Whether we could make it if they wanted it.

Q. That was the purpose of that conversation?

A. That is my recollection of it.

[fol. 489] Q. And do you recall what you told them on that subject?

A. I do not. Captain Brown did most of the talking, and my recollection is that he assured them that they could have some reasonable amount. I don't remember the figures, although I read this testimony, and that he also gave them a price that might be expected, but I have no recollection of the details of it.

Q. Well, do I understand you to say now that you told them you would furnish them with one-eighth?

A. No, there was no agreement at all—no obligation—but merely a canvass of what might be expected in the way of the available supply and the price under certain hypothetical conditions that were set up by Mr. Haskell and Mr. Edwards.

Q. Well, were you in a position at that time to furnish the Triplex Company with one-eighth-inch plate glass suitable for use in the manufacture of laminated glass?

A. Do you mean did we have the capacity to supply it?

Q. Were you then making it?

A. Yes.

Q. And of a character that was suitable for use in laminated glass?

A. Yes.

Q. And just what was the purpose then? Was there an agreement entered into or a statement on your part that you could furnish the Triplex Plate Glass Company with the glass that they desired at this time?

A. I wonder if we are not getting the dates mixed, Mr. O'Shea. You began talking about 1925. Are you still talking about that date?

Q. I am talking now about the conversation which you seem to recall and which I understand took place some time in 1927—the latter part of 1927.

[fol. 490] A. You spoke about 1925 originally. My statements have been with respect to a meeting which was ar-

ranged with Messrs. Haskell and Edwards before they went into the laminated glass business.

Q. That was before 1925?

A. Before they went into it, yes.

Q. And at that time there was a discussion as to whether your company could furnish one-eighth-inch plate glass suitable for use in the laminated glass business to the Triplex Company?

A. As to whether we would have the capacity to supply it. That is correct.

Q. Did you tell them that you then were, at that time, making one-eighth-inch plate glass suitable for their purposes?

A. I don't know whether we told them that or not.

Q. Do you recall whether you told them that you were not making it?

A. I couldn't recall that, either. I assume not, because we were making one-eighth-inch plate right along.

Q. Suitable for use in laminated glass?

A. I think so, yes. Others were using it.

Q. Did you have any other conversations during the years 1926 and 1927 with Mr. Edwards or Mr. Haskell with respect to whether they could purchase this one-eighth-inch plate glass from your company?

A. I don't remember any specifically, Mr. O'Shea, although I saw Mr. Edwards and Mr. Haskell also at rather frequent intervals from the time they decided to go into the laminated business, and it is quite likely that we did discuss it, yes.

Q. Did you tell them at that time, during the years 1926 and 1927, whether you would be in a position to sell them one-eighth-inch plate glass suitable for use in manufacturing laminated glass?

A. I don't recall any specific conversation.

[fol. 491] Q. Well, subsequently you did sell one-eighth-inch plate glass to the Triplex Company, did you not?

A. Yes.

Q. Do you remember when you first began selling them?

A. No, but I would suppose in small quantities rather soon after they started in business, from my recollection. Our files would show if you want the records.

Q. Soon after the Triplex Company started in business?

A. I would think so, yes.

Q. That was in 1926?

A. Well, I guess that isn't right. If you want that, let me get the records for you, Mr. O'Shea. You are welcome to them.

Q. I would like to have you refresh your recollection as to when you first began to sell to the Triplex. If it will help you any, Mr. Cauffield tells me you began to sell him early in the first part of 1928—April or May.

A. Very well.

Q. You testified you advertised this one-eighth-inch plate glass in 1928?

A. We started in the fall of 1928.

Q. Do we understand by that you did not advertise it prior to 1928?

A. No, I think not.

Q. You mean you think you did not advertise it prior to 1928?

A. I think we did not.

Q. Was there any reason for not advertising it prior to 1928?

A. Yes.

Q. Why was that?

A. The plant was busy making three-sixteenths-inch thickness.

Q. Are we to understand then that you had no special interest in the sale of this one-eighth-inch plate glass?

[fol. 492] A. Prior to that time?

Q. Prior to 1928?

A. Yes, no great interest in it prior to that time, because we were very busy making three-sixteenths and one-fourth-inch glass.

Q. What was your production prior to 1928, do you suppose, of three-sixteenths and one-fourth?

A. I wouldn't want to say.

Q. It was many times greater, I take it, than the one-eighth-inch plate glass?

A. Oh, yes, many times. Quite right.

Q. Did you, however, quote the one-eighth-inch plate glass in your price lists prior to 1928?

A. I think we have always quoted it.

Q. Have you any of those price lists available in your records, do you suppose?

A. Yes.

Q. Will you produce, say, one in 1926 and one in 1927?

A. I may not be able to get them for those exact years.

Q. Or something prior. One or two or three prior to 1928?

A. Yes.

Q. What do you say the Pennsylvania Railroad used the one-eighth-inch plate glass for?

A. For their passenger cars.

Q. You mean by that the windows in their passenger cars?

A. Yes.

Q. Do they use it today—the one-eighth-inch plate glass?

A. Yes, in all their passenger cars.

Q. Is that true, too, of the New York Central?

A. Not all. The New York Central have used one-eighth-inch plate in some of their cars, but the Pennsylvania have adopted it as standard equipment many, many years ago—say before the war.

[fol. 493] Q. And you supplied them, did you?

A. We supplied them.

Q. Are you able to say from your knowledge of the laminated glass as to whether this one-eighth-inch plate glass that was supplied to the Pennsylvania Railroad, let us say, was suitable for use in the manufacture of laminated glass?

A. I think it would have been.

Q. I take it that it is your opinion that any one-eighth-inch plate glass is suitable for use in the manufacture of laminated plate glass.

A. No, I didn't say that, Mr. O'Shea.

Q. Well, is there some one-eighth-inch plate glass that would not be suitable, do you think, for use in laminated glass?

A. Why, yes. Glass might be very badly finished; it might have defects in it that would make it very bad for laminated glass.

Q. Of course, when you use this glass in laminated glass it has to be very clear and has to have great care taken in the process of it, does it not?

A. No different than the glass we make for every other purpose for which one-eighth-inch plate glass is used. It is all made by identically the same process.

Q. No more care has to be taken?

A. No more care has to be taken. The plant operates continuously, Mr. O'Shea, and we don't have special runs.

Q. Do you know whether or not it is true that the great bulk of the one-eighth-inch plate glass used by the laminated glass manufacturers prior to 1928 was procured from abroad?

A. I rather think it was.

Q. That is, the great bulk of it came from abroad that was used by these laminated glass manufacturers?

A. I think it was.

[fol. 494] Q. Will you please tell us what other American companies prior to 1928 sold one-eighth-inch plate glass?

A. I think Edward Ford Company made it in small quantity.

Q. Is that the company that is now amalgamated with the Libby-Owens-Ford?

A. Yes.

Q. Any other companies that you know of?

A. I don't think any other companies made a business of producing one-eighth-inch plate.

Q. Prior to 1928?

A. Yes, prior to 1928, although some other manufacturers did sometimes make it by regrinding, I think, glass that came out with a poor finish. Every manufacturer had a certain number of tables which are received with a poor finish or scratched surfaces which impairs the marketability of the product. Instead of throwing that away, the glass would be relaid and reground and come back as one-eighth.

Q. Would that reground glass be suitable for use in laminated glass?

A. It might be or might not be, depending on the success of the operations.

Q. When you reground that way would the resultant product be even as to thickness?

A. It might be and might not be. Unevenness, of course, was one of the difficulties with the old style of plate glass manufacture.

Q. You mean the old style of one-eighth-inch plate glass?

A. No. I mean thickness was always a problem with the old style manufacturing machine.

Q. I thought you said unevenness.

A. Unevenness in thickness was the problem.

Q. And, of course, if it was uneven in thickness, it was not suitable?

[fol. 495] A. It would be difficult to laminate, depending upon the degree of unevenness.

Q. That degree would be very slight to make it unsuitable?

A. You understand no commercial plate glass is absolutely flat. It does not have scientific parallel surfaces, so flatness and unevenness is present to a certain degree. Our present glass is wedgy to a certain degree. These sets I have spoken of when returned to the factory for regrinding if the process was done evenly, the product was entirely satisfactory for laminated glass; if it was done unevenly, and wedgy, it was not satisfactory.

Q. It was quite important in laminated glass to have it as close to the ideal and level surface as it was possible to get it?

A. Quite right.

Q. I would like to have the information concerning Indestructo and Saftee.

A. The Saftee Glass Company and Indestructo did a very small business prior to 1928.

Redirect examination.

By Mr. Smith:

Q. Mr. Higgins, you said in answer to Mr. O'Shea that the Ford some time prior to 1928 used a window glass laminated windshield, as I understand you.

A. Yes, that was the product which they originally put into the Ford car. It was laminated glass made of two sheets of window glass instead of two sheets of plate glass.

Q. Is that a cheaper product than plate glass lamination?

A. Very much cheaper.

Q. And how does it compare in quality?

A. Not nearly as good, of course.

[fol. 496] Q. But at that time the only standard Ford equipment where laminated glass was used was these windshields which were laminated window glass?

A. That is correct.

Q. Just a question about these passenger cars. When you spoke of the Pennsylvania Railroad passenger cars did you mean by that the Pullman cars or ordinary day coaches?

A. The ordinary day coaches.

Q. The Pullman cars are made by a different company?
A. Yes, different company.
Q. Do they use a different glass?
A. Three-sixteenths.
Q. The passenger cars—that is, the day coaches—are made by the Pennsylvania Railroad themselves?
A. Generally. If they have a large quantity to build, they sometimes will sublet a portion and build a portion in their own shops. If they sublet a portion, we sell it to them—like the American Car & Foundry, or somebody of that sort.
Q. The Pennsylvania Railroad have a shop at Altoona?
A. Yes.
Q. Your testimony was they used the laminated glass in the ordinary day coaches, as distinguished from the Pullmans?
A. Yes.

J. H. SHERTS resumes the stand.

Direct examination (continued).

By Mr. Smith:

Q. Mr. Sherts, you testified earlier in your examination some days ago that you were employed for some years by the du Pont Viscoloid Corporation, if I remember the name of it. Was that it?
[fol. 497] A. That is correct.
Q. And were you familiar with these sheets of pyralin, such as were used in 1928 and 1929 and during the balance of the accounting period, in the manufacture of this laminated plate glass?
A. I was.
Q. Will you please tell the Master whether or not on January 1, 1928, and prior thereto, and also subsequent thereto down to May 31, 1930, these sheets of pyralin such as were used in the manufacture of this laminated glass were a marketable product?
A. There is nothing really different about the celluloid or pyralin used in safety glass and the standard product which had been used ever since I went with the du Pont Viscoloid Company in 1919. The product was made in very great quantities and sold for automobile curtains be-

fore the closed cars came in, for combs, brushes, mirrors, toilet articles, hair pins, goggle frames and a number of other places. The only difference between one type of product and the other was the color that was put in it, but the clear transparent that was used for safety glass was the same as the clear transparent used in automobile curtains in tremendous quantities ever since automobile curtains have been used; so it was nothing new.

Q. And used not only for automobile curtains but for these other uses?

A. Yes.

Q. Please answer were or were not these pyralin sheets, such as were supplied to the Duplate Corporation, a marketable product? I mean a thing sold on the market in that form during the period you have mentioned.

A. They were.

[fol. 498] Cross-examination (continued).

By Mr. O'Shea:

Q. Mr. Sherts, in the pyralin used in this laminated glass business, wasn't that processed, at least, more carefully than the pyralin which you made into curtains for automobiles and combs?

A. I wouldn't say it was processed more carefully in general. In this product it was necessary, of course, to be careful in one respect and that was to keep dirt out, which wouldn't be objectionable perhaps in hair combs.

Q. Well, the wavy condition that you spoke of in your testimony had to be watched too, or the condition that produced waves in pyralin?

A. The thing that could produce waves in pyralin was the seasoning, and they are still seasoning it the same way as they did originally, and there has been no change in that respect.

Q. Well, didn't it have to be watched more carefully through the process so as to prevent, as far as possible, those wave lines?

A. Sheeter lines?

Q. No, the wavy condition first.

A. I would say no.

Q. How about the sheeter lines that you discovered?

A. It didn't have to be watched nearly as carefully for

sheeter lines as the pyralin used to cover wooden heels for ladies, which is a very sizeable market. Nothing new was done on those lines. We, of course, were as careful as we could be so as not to have rejects or cause anybody any trouble in using it.

Q. Well, in doing that, however, as I understand it, there was no necessity of taking any special care in the processing of the pyralin sheets?

[fol. 499] A. We endeavored to keep dirt out and we tried to improve our factory from that standpoint. Aside from that I think of no other changes.

Q. Then, you spoke of a condition in the pyralin that resulted in a haze when put into laminated glass. In processing your pyralin was it not necessary to watch carefully to prevent that condition?

A. Yes, they watched the raw material and rejected the material that came through hazy, whereas for automobile trade they did not have to reject it, but that simply meant a reduction in their yields.

Q. When you spoke of automobile trade you meant for curtains?

A. I meant for sheet curtains.

Mr. Smith: Counsel for defendants renew the objections to the allowance of the two additional objections, Nos. 18 and 19, as I recall, to our account offered by Mr. O'Shea for the reasons heretofore stated in the record by Mr. Christy and by myself, and that includes of course Mr. O'Shea's request for an account of costs of making one-eighth inch plate glass by the Plate Glass Company as well as the cost of these pyralin sheets.

The Master: I will withhold decision relative to those two objections until we get the briefs, or what assistance you will give me in helping me to determine relative to the additional statement asked for by counsel for the plaintiff.

Mr. Smith: It is mutually agreed between counsel for the parties that pending the decision of the Master on the objections covering Mr. O'Shea's additional objections, Nos. 18 and 19, we will continue and endeavor to complete the examination of Mr. Sherts, upon its being understood that by so doing the defendants do not waive any rights, and that among the rights they do not waive is the right, as they [fol. 500] maintain, to decline to introduce further testimony until it is determined whether or not Mr. O'Shea's

additional objections are to be allowed and the account of costs therein requested ordered.

(Recess taken until 1:30 o'clock P. M.)

Afternoon Session.

J. H. SHERTS, recalled on behalf of the defendants, testified as follows:

Direct examination.

By Mr. Smith:

Q. Mr. Sherts, among other things, I forgot to ask you the other day about these assembly department losses. What was the assembly department, briefly?

A. The assembly department was the department where we cleaned the glass, sprayed it with cement, put the pyralin between the plates and adhered them together with adhesive paper prior to putting them in the rubber bags.

Q. Well, what losses, if any, did you experience in your operations there?

A. We had considerable amount of trouble, of course, with the equipment, as the equipment had to be developed at the same time that we were producing. Practically the entire period that we were manufacturing in the original safety glass factory our equipment was under a stage of revamping. At first a conveyor was built, and provided with one brush for removing the pumice, and a small drier for drying the pumice. As soon as we got the production orders of May—Cadillac and LaSalle orders—it was neces- [fol. 501] sary to change the speed of the conveyor and lengthen it, put more brushes on it—in other words, the drying hood—and with the change in speed we also had to change the amount of cement that was being thrown, and the first couple of months we operated by having a man simply spray the plates as they would pass by him. This was discovered later, particularly on the night shifts when supervision was poor, to be a very inadequate method, as areas of plates were frequently missed, due to the fatigue or personal element entering into it, so that we had to make a mechanical arm that would guide the gun back and forth across the conveyor. This was operated at first by hand,

and a timing device was put on the conveyor which clicked every time the conveyor moved two inches. That was to guide the operator in making one pass back and forth across the conveyor. This was used for several months until it was found not to be absolutely foolproof, and a mechanical device had to be developed and installed. These changes I am referring to were all being made during this rush period of operation, and it is obvious with mechanical men coming into a department where we were trying to keep all the dirt out, that it was physically impossible to prevent a great amount of dirt getting into our product at this point. In the little room where the spraying was done, when we were operating on a small basis, it was not found necessary to filter the air, but when we began to produce thousands of plates a day, operate day and night, more people were required in the rooms, more mechanical motion and more product handled, contamination reached a point where it was necessary to install in the room motors and fans and ducts for conveying the air, and filters so as to remove as much of the floating particles as possible. We, at this time, had to increase the amount of cement used, and [fol. 502] as this had to be made in a perfectly clean room, it became necessary for us to make it in this cement spraying room, as it was the only clean room available. It was later found that the fact that there were men making this cement in the room with steam and heat brought about a condition which caused dirt and heat, so that with summer coming on in June or July a system of ventilating the room had to be installed. This meant overhead pipes, fans, and so forth. The specialty manufacturing, such as bullet-proof and large plates, which could not be handled with our small equipment—I mean our conveyor which was relatively small for these large plates and on which bullet-proof or one-inch glass could not be handled—had to be assembled and sprayed in this one small spraying room, which was also our laying-up room. This pictures the condition of constant moving in and out of the room and a relatively large number of employees naturally carried into the room dirt and particles which resulted in a great many of our rejects. Other experimental ideas were tried out in the room, such as a method for cleaning the pyralin. It had proved satisfactory in the laboratory in a small experimental way but would not work in a practical way, so that it was neces-

sary to remove it. These spray guns at first passed back and forth over the belts which constituted the conveyor. These belts, as I recall, were approximately eight or six inches to a foot wide. For several months nothing happened, but when we got into the large production the cement began to coat the belts and the air from the spray gun tended to force the particles from the surface of the belt up on our glass. The gelatin had a tendency of peeling the surface of the belt, which was rubber, and in this way, before we could correct it, a great many particles of rubber, which were so small that they could not be detected by our [fol. 503] inspectors—our examiners—before it was put into rubber bags, pressed out to objectionable size defects in the high pressure of pressing. This condition necessitated a major change in our conveyor. The conveyor had to be cut and divided into two conveyors, so that the part that passed under the spray guns was a separate unit. We then made that unit out of thin belts about a quarter of an inch in diameter and provided space between them so that the air from the guns would blow down through the belts and carry the dirt toward the floor instead of rebounding back, as in the case of blowing against the flat, broad belts previously used. This worked all right at first, but after a few weeks or months we discovered that these belts got so coated with wet cement that it put cement on the back of the plates. When they were laid up in the rubber bags, as previously described, in pairs of two or double-decked, we ran into a condition of the two glass plates sticking together.

By Mr. Christy:

Q. You mean two sandwiches?

A. Two sandwiches sticking together. In separating them the cement caused the surface of the glass of one or the other of the sandwiches to pull off, so that this part of the conveyor had to be revamped. We then designed and installed a metal slat conveyor for passing under the spray guns and this was carried through water, a pan of water, before returning to the point where it picked up glass and conveyed it under the spray guns. This was a major change and meant considerable amount of carpentering and mechanical work, and at a later date it was considered advisable to put partitions in this room so that the

spray guns would be in one division, the cement mixing in another division, and the men who laid the glass and pyra-
[fol. 504] lin together in another division. In order to prevent dirt from falling down on the glass after it had been sprayed, we built a metal canopy over the conveyor, which was a little higher than a man's head, but would prevent dirt from the ceiling from landing on the glass. Inspection lights were installed and changed a number of times to provide the best possible means for examining the glass, so as to prevent glass with dirt included between the two pieces of glass and the celluloid from being pressed. I have just mentioned the bigger developments in that department, but I think it should be clear from this that the condition in that assembling department was a series of changes, one after the other, just as quickly as we could determine what was causing a certain kind of defect and we could agree on a step which would tend to eliminate it, and I could go on mentioning, I think, dozens of minor changes should you care to have them recorded.

Mr. Smith: You need not do that, I guess.

A. (Continuing.) In that department, like all other departments, Mr. Lytle and I and several other men gave a large part of our time trying to help the production department by making this suggestion or that suggestion or installing what we thought would be an improved condition or piece of equipment to reduce their losses and improve their yields.

By Mr. Smith:

Q. Was there what you might say constant revamping of equipment in these operations?

A. There was a constant revamping.

Q. Did that revamping of equipment, while it was being made, did that interfere with your operations and the quality of your product?

[fol. 505] A. That naturally interfered decidedly and resulted in poorer yields and large numbers of rejects.

Q. Now, in this specialty glass and bullet-proof glass, you spoke, I think, of the difficulty with the conveyor in respect to this bullet-proof glass, which I understand is an inch thick. Is that right as to thickness?

A. Yes, at one time it was an inch thick and later a standard of 1⅛ inch was adopted.

Q. Were there any other difficulties with this bullet-proof or other specialty glass in addition to what you mentioned?

A. We had glass plates which were so large that the celluloid sheet wouldn't reach the whole way across the plate. It was therefore necessary to cut two pieces of celluloid with a straight edge and butt-joint them so as to have a celluloid sheet large enough to cover the entire area. That butt-jointing naturally required a lot of extra handling and care in putting it together, because if there was a gap between the two pieces of celluloid, it constituted a reject; if it overlapped, it resulted in a break under the pressure.

Q. Break of what?

A. Break of the outside cover of glass. Bullet-proof is made of three pieces of glass and two pieces of celluloid, and naturally with a butt-joint and sometimes two butt-joints in each piece of celluloid the complications are very great; so much so that the production people were unable to handle it and we had to train special men and have them follow that type of work from beginning to end.

Q. How do you spell butt-joint—b-u-t-t?

A. Yes, b-u-t-t-joint.

Q. What do you mean by butt-joint?

A. We mean the two edges of celluloid are cut straight and butted together end to end.

[fol. 506] Q. And then placed inside the sandwich?

A. Yes, sir; so that they come as near forming a solid sheet as possible. There is a hair-line noticeable where the two edges join.

Q. In your opinion did the various operating difficulties that you have referred to furnish sufficient reason for the large losses in operation and the rejects from your own plant and also rejects by customers of laminated glass that the company is seeking to establish in this case?

A. In my opinion they did. I was familiar with every type of reject, and we took the responsibility for them at the factory and tried as hard as we could and as fast as we could to correct the condition.

Q. Mr. Sherts, if a piece of glass is traveling along your conveyor and gelatin falls on the top of the glass, when you remove the gelatin does that have any effect on the glass itself?

Mr. Christy: That is, suppose gelatin gets on the outside surface of the glass.

A. It wouldn't have any effect on it unless it adhered it in the pressing to another plate of glass which could not be removed readily, in which case it would pull and chip the surface of the glass off.

Q. In what case would it do that?

A. In the case of laminating if two sandwiches were put together, one on top of the other, and you had gelatin on the back of one, it would cause those two sandwiches to adhere together so that in pulling them apart the adhesion to the glass would be so great it would pull the surface of the glass off.

Q. Do you happen to know whether or not that method is used in making frosted glass?

A. Yes, that is the standard method of making frosted glass, of putting gelatin on and letting it dry so that [fol. 507] when gelatin shrinks it pulls the surface of the glass off.

Q. Now, you spoke, as I recall it, of taking some of this laminated glass and salvaging it by separating the sheets of glass, I believe, using them over again. Is that the idea?

A. That was the idea, to try to at least get some value out of the glass. If there was no value in the product as it was laminated, we endeavored to separate it and then use the glass over again.

Q. What was your experience in that operation?

A. We started in the fall of 1928 to separate glass in large tanks of boiling water and this required approximately forty-eight hours of boiling, and after separating quite a large quantity of it, working for several months, we found that the glass surface was destroyed, due to the water and the alkaline effect of the water and the handling required in getting it into the tanks and getting it out and cleaning it, so that we were unable to use very much of it, such a small quantity that our efficiency men showed to the satisfaction of everyone that it was a decidedly uneconomical operation.

Q. Lost money on it?

A. Yes, sir, and we discontinued it at once.

Q. Any glass that you did salvage at any time, was that put into the company's plant and reflected in its account so as to show the effect?

A. Yes, that was all charged back.

Q. Did any of your automobile customers maintain inspectors in your plant to inspect your product before it was sent out to them?

A. No; except when we started producing for the Cadillac and LaSalle, due to the fact it was a new business with us and in order to get to a clear understanding as quickly as possible and so that we would not make a large percentage of rejects which were obviously rejects to them, they at our [fol. 508] request sent one or two of their inspectors to our plant for a few weeks for the sole purpose of educating our inspectors and standards men on what would pass out there and what wouldn't, and what constituted a defect, to arrive at a definite understanding.

Q. What period was it when those inspectors from the Cadillac were there?

A. I would say that was in May or June.

Q. 1928?

A. 1928.

Q. And after June, 1928, were there any inspectors from customers in your plant?

A. Not that I recall.

Q. Now, what was your experience with respect to glass rejected by your customers after you had shipped it on orders?

A. Well, we experienced the fact that certain customers rejected as high as 35 per cent. of the glass we shipped them, and we thought we were doing pretty well if the rejects didn't run over 15 per cent. before they installed it in cars.

Q. Is that high—15 per cent.?

A. It is terribly high.

Q. Was the glass actually sent back to your plant?

A. It was all sent back to our plant, yes, sir.

Q. And what happened with respect to your accumulating a stock of rejects sent back by your customers?

A. Well, it was sent back and we didn't know what to do with it. We were so busy handling the problems in our factory, trying to correct the conditions, that it was simply set aside in several places. We stacked it under the leers in the Pittsburgh Plate Glass factory and we began to store it in the addition to our old factory as soon as it was completed.

Q. That was the first addition you made to the old factory, was it?

[fol. 509] A. The only addition we made to the old factory.

Q. It was not your new building?

A. No, the annex to the old factory.

Q. How much of that addition to the old factory did you finally occupy with these rejected plates?

A. We nearly occupied the whole building except for an aisle-way or two leading through the glass, and in some cases it was stored two stacks high.

Q. Could you operate under those conditions?

A. No, we never did operate very much in that new end. It got filled with rejects before we got started in it. We used a little corner of the building; I should say a part thirty feet square.

Q. What did you do to relieve yourself of this accumulation of rejects that your customers sent back?

A. We started a relamination of it, had a number of inspectors go through the entire lot of glass and classify it into two stacks: one, plates that we though could be cut down and sold as a smaller size, and the other, plates that were to go to the dump as so much scrap.

Q. You mean the dumps of the City of Pittsburgh?

A. Of the town of Tarentum.

Q. Was there any large quantity of these glass rejects that were actually thrown on the dump and thrown away?

A. Yes, there were very large quantities, as we had big trucks work continuously for several weeks after we got them aside, and then practically every day we would send a truckload or more up to the dumps, so that there was dozens of truckloads of this laminated glass cracked and taken up and dumped.

Q. Then, there was a certain amount of it you set aside for cutting to smaller sizes?

A. Yes, sir.

Q. In a word, what happened when you cut those down to smaller sizes?

[fol. 510] A. We experienced separation out in the trade and a second return of them.

Q. That is, if you cut the laminated glass to a smaller size, it continued separating?

A. It would start separating again.

Q. And be rejected again?

A. A large percentage of it would separate at once and be rejected again.

Q. So did you find it was the proper procedure in the interest of economy to use these rejected plates?

A. This required some considerable time to determine how much trouble we were getting from this cut-down salvage. Finally, it was determined that it was decidedly bad business for our company and we were losing money and getting a lot of criticism, and it was decided to discontinue it and separate the remainder that we had laid aside.

Q. Was it wise judgment on your part to come to that decision?

A. Absolutely.

Q. And you have described your experience in separating the remainder?

A. No, I haven't described our experience in separating the remainder. The remainder was separated by a new process which was developed in that interim of two years namely, separating under pressure in stead of in an open tank. That way we could get a temperature of about 250 degrees in the water, which caused a plate to separate in six hours instead of forty-eight hours, and this way we were able to overcome a lot of the damage that had been done by that slow process of separating in open tanks, and this time we did succeed in getting a percentage of good glass, sufficient to justify the cost of separating.

Q. And did that go into your plant accounts?

A. That shows up in the plant accounts too.

. . . . . .

[fol. 511] Q. Mr. Sherts, when you were on the stand before, you testified to having been in the Saftee Glass Company's plant. Where was that?

A. That was at Wissinoming, Pennsylvania.

Q. And you spoke about them having one or more autoclaves in that plant?

A. Yes.

Q. Were you allowed to inspect the operation of the autoclave?

A. No. Everything was considered—their operations were considered of more or less secretive nature, and I was

called in on pyralin, as pyralin affected their product—for instance, haze or adhesions—and the result is I had never been down around the autoclaves. I could see them while working at one end of the factory, see the tanks down there, and about how big they were, but that was about all. I had no information particularly about the way they were operated.

Q. Would you have had to examine the inside of the autoclave to see how they operated?

A. Yes, we would have had to examine the inside and the way the heat was introduced and how it was heated and how the pressure was applied.

Q. Were you allowed to do any of that?

A. No, sir.

Q. Did you get any information from your visit to that plant which would teach you how to operate the autoclaves in your Duplate plant?

A. No, I should say not. We only learned the general principle, which was known to everyone in the laboratory, of heat and pressure by autoclave, but nothing of the details which constitute the technique and the peculiarities of this industry.

Q. Was it necessary to learn those details in order to successfully operate autoclaves practically and commercially?

A. Absolutely, and it is a very difficult thing.

[fol. 512] Q. When you spoke of customers' rejects what do you mean by that? Do you mean your company shipped, let us say, a certain number of plates of laminated glass in filling an order and then the customer rejected part of that shipment?

A. That is correct.

Q. And you mean to make that description apply to all these customers' rejects, do you?

A. Yes, sir.

Q. Now, the part that the customer rejected, did they pay for that or not?

A. He would set them aside when he received them. He would have a receiving inspection and set the plates aside that didn't meet his approval. He would send for one of our men to come and examine them. We would send the man and he would examine them and admit that they were not up to the customer's standard and legitimately our

failure to deliver what he purchased. He would return and authorize the city office to issue a credit to the customer and the customer to return them to our factory.

Q. So it was a case of filling an order and having part of it rejected and thrown back on the plant?

A. That is correct, and credit issued for that.

Q. When you said your inspector would go there and approve the rejects—that is, he would either approve or disapprove, I suppose?

A. Yes, sir, he would examine every plate set aside and occasionally he would find one that they agreed was on a margin, and they would accept it.

Q. In your testimony the other day you testified to an Exhibit "F," as I recall it, which showed rejects by plates and not by feet. Under whose direction was that Exhibit "F" prepared?

A. Originally I started that system of recording rejects in order to classify our rejects so that we could attack intelligently the worst condition, or the condition that caused the greatest percentage of rejects.

[fol. 513] Q. These we are speaking of now, Exhibit "F," were plant rejections?

A. Yes, plant rejections.

Q. Rejects by your own organization?

A. That is correct.

Q. You did that for the purpose of discovering what the trouble was with your operations?

A. Yes, sir.

Q. Did you do that for the purpose of making an accounting record for the purpose of getting it in the shape of feet and dollars, or just to show the troubles in operating?

A. No, that was purely for the purpose of knowing just why so many plates were being thrown out, so we could correct the cause of the trouble.

Q. And for your purposes in endeavoring to correct these operating defects, was it just as good to have an exhibit prepared in plates as in feet?

A. Yes.

Q. Do you remember in connection with your customer rejects whether you went out on the road endeavoring to check up and remedy that situation?

A. Yes, sir, I was out on the road several days a week and practically every week soon after we began to ship

glass to our big accounts, studying what was wrong and bringing the information back to the factory so we could correct it and overcome their complaints.

* * * * * * *

Q. In operating your plant out there was it practical to lay up a stock of your manufacturing product of laminated glass, or did you have to keep it moving through the factory?

A. It was impractical to lay up a stock as we could only manufacture on releases from a customer and the product [fol. 514] cannot be cut down economically from a larger block size as compared to manufacturing it originally in the finished size.

Q. That is to say, you mean it was not economical to make a sheet of glass like this book and store it away and then later cut a windshield out of it?

A. No, not for regular production. It would be to make a replacement occasionally.

Q. It wouldn't be proper practice in regular production?

A. Oh, no.

Q. In other words, when you are making laminated glass for windshields you make it on actual orders for windshields?

A. Yes, sir.

Q. And you cut it to proper windshield size and delivered it in that shape?

A. That is correct.

Q. And did that apply to your other products you were turning out?

A. It does. We made for the warehouses some block sizes so they could make replacements, but we never made any quantity of them before we received orders to ship them.

Q. I suppose that was a very trifling amount?

A. Very trifling amount; as low as we could possibly keep them.

Q. Then, is this a fact, that your production of laminated glass represented substantially your sales of glass?

A. Our production represented sales?

Q. Substantially.

A. Our production plus the rejects—well, we sold everything we made except what was rejected.

Q. And these rejects, I think you have already said, were made in the process of filling orders? That is, you at-

[fol. 515] tempted to fill an order and you ran into some rejects?

A. That is correct.

Q. Now, you spoke of some difficulties with bowed glass. What was that briefly?

A. That was a very serious difficulty and caused a great number of rejects, due to the laminated plate being bent so it would not fit in a frame—would not slide up and down the channels. for an automobile account.

Q. Well, did you have to correct this bent or bowed condition?

A. We attempted to by repressing the plates, and we tried to correct the conditions in the factory which caused the bowing. We were unable to ever correct that as long as we used the rubber bag method of pressing. In repressing these bowed plates the breakage and scratches and burning, and failure to straighten, was a very high percentage.

Q. I think you testified the other day at one time you had to buy a large stock of these pyralin sheets from the du Pont Viscoloid Corporation, and I think you said it took you substantially a year to use it up. What is the effect of pyralin when it is stored for a year? Does it have any effect on the quality of it?

A. No, we were not affected by deterioration due to the storing, but in their rush to manufacture these large orders they ran into a lot of defects in the pyralin which they had never heard of before and we had never encountered, and then during that following year that defective pyralin got into our system and before we discovered the defect it was a source of a great deal of trouble and rejects.

By Mr. Christy:

Q. When you went to the Pittsburgh Safety Glass Company and through the first two years of operation until you [fol. 516] became superintendent, what official title did you have, or by what title were you known?

A. I had no title at all until August, 1928, when I was given the title of technical director, and in June of the next year I was made technical director and assistant general manager.

Q. Did that technical director work include what you may

have termed or some of the witnesses may have termed research?

A. Yes.

* * * * * * *

Q. Mr. Sherts, on your direct testimony do I recall correctly your stating that you were not allowed to examine the Saftee process in detail?

A. That is correct.

Q. You testified in the District Court in this case, did you not?

A. Yes, sir.

Q. I read from the transcript of record of the District Court testimony as follows: page 117—"I first saw the operation of the Saftee Glass Company in 1921, but not particularly in detail until the early part of 1922," and again at page 120 I quote your testimony in the District Court as follows: "It was after my visit to and examination in detail of the process of the Saftee Glass Company of or near Philadelphia that we caused this defendant enterprise to be formed and an operation similar to that which I had observed in the Saftee Glass Company to be put into commercial operation by the defendant." Do you recall that testimony?

A. Yes, sir.

Q. Was the testimony true at the time it was given?

A. It was, but at that time we were talking about the cement——

[fol. 517] Mr. O'Shea: If your Honor please——

Mr. Smith: Let him explain.

A. (Continued.) It is not true then.

Q. Do you want to say it is not true now?

A. It is not true as applied to the autoclaves.

Q. Am I to understand now that you wish to be understood that you testified untruthfully in the District Court?

A. No. May I explain?

Mr. Smith: Certainly you may explain. Go ahead.

A. (Continued.) In the testimony today I said I didn't know the details of the autoclave operation, that I could see it in the plant in a general way. I saw the autoclaves, about how big they were, and I knew from laboratory ex-

perience and general knowledge how an autoclave operates with a heat in it, and in the case you refer to I was familiar with the spraying of the operation in detail and the handling of the pyralin. In that part of the plant I was admitted and worked closely and was familiar with the operation, so there was a distinction—very decidedly. In the testimony offered in the original hearing we were interested in the cement condition and the condition of our application of cement, and the pyralin end of it. Now, there are two decidedly different phases: the one as pertaining to the cement and celluloid, which I still admit, as I stated at that time, I was familiar with in detail; the rest of it only in a very general way and not in detail. I knew there were presses there. I knew how they used pressure, but I didn't know the circulation or the mechanics of it when I went into the factory any more than I knew autoclaves were operated in a general way in any kind of factory they were used in. I don't see that there is any difference or change of mind on the subject at all.

[fol. 518] Q. I quote from your testimony in the District Court, starting at page 117 as follows: "The operation of the Saftee Glass Company in 1922 consisted of cutting the glass plates to size, passing them through a small washing machine, which was connected with a conveyor. The plates came through this washing machine, were dried over a heater, passed by an opening in a hood, where a girl sprayed it with an atomizing gun similar in principle to the one we use—sprayed it with the gelatin solution, 2½ per cent. solution, and the glass continued on the conveyor through another covered chamber, which was heated with steam coils. At the end of this time, if the glass was not sufficiently dry, it was put in a small cupboard alongside the conveyor, where it was left until it was dry to sight. After this it was wiped off with a chamois, pyralin was interposed between two gelatin-coated glasses. This sandwich was held together by small paper stickers approximately three-quarters of an inch broad, and two inches long. This sandwich was then laid on a cloth, which was folded back over the top of it to prevent scraping, and the entire package shoved into a rubber bag approximately twenty by fifteen inches in dimensions. The end of the rubber bag was clamped, and a vacuum hose attached to a small nipple in the bag, and this afforded the means of withdrawing all the air in the bag. At this operation the vacuum hose was

disconnected, and a small plug inserted in the nipples to prevent air and moisture from re-entering. Approximately five of these bags were then placed in a small cast-iron pot. They were staggered, so that water forced in at the bottom and let out at the top circulated evenly over and under the bag. This afforded even temperature. This pot was then closed and clamped tightly, filled with water, and heated by running the water through a heat exchanger to a temperature approximately 250 degrees Fahrenheit. At [fol. 519] this point pressure was exerted by means of a small hydraulic pump, to the extent of approximately 150 pounds per square inch. The temperature and pressure was maintained for approximately fifteen minutes, during which time the heat was transferred through the bag to the plastic, the pyralin sheet." Do you recall that you so testified in the District Court?

A. Yes, sir.

Q. Was that testimony in the District Court correct at the time you gave it?

A. It was.

Q. And it is correct now?

A. It is. I do not think that it interferes with the statement that I was not particularly familiar with the details of the autoclave operation.

Q. Does not that testimony in your opinion indicate that you were then testifying that you saw it in the Saftee Glass Company's operation?

A. I saw this in a general way. I never saw a pump. I knew that a pump was used. I had a little autoclave of my own before I came out here and I had learned the principles, but I never saw the operation of the autoclave at Saftee.

Q. Didn't you testify also as follows: "It was after my visit to and examination in detail of the process of the Saftee Glass Company, of or near Philadelphia"——

A. That word "process" in the way it was used at that time applied to——

Mr. O'Shea: I object to that, your Honor.

The Master: He may explain.

A. —to the gelatin and the water in the gelatin and the way they handled the gelatin and the pyralin.

Q. That testimony refers in your opinion now only to the gelatin?

[fol. 520] A. So far as the detail was concerned. The rest of it was general.

(Adjournment was taken until Thursday, February 11, 1932, at 10 o'clock A. M.)

Thursday, February 11, 1932.

Met pursuant to adjournment.
Counsel present as before.

J. H. SHERTZ, resumes the stand.

Cross-examination (continued).

By Mr. O'Shea:

* * * * * * *

Q. You testified with respect, as you will recall, of the necessity of leaving a two-inch margin around the edge of the size of the glass that your customer had ordered. I am speaking now about this question of a margin around the bracket size ordered by the customer.

A. Yes, sir.

Q. Do you recall that testimony with respect to that subject?

A. I remember we stated the standard practice was to leave a one-inch margin for breaking the glass off.

Q. One inch on each side of the glass?

A. Yes, sir.

Q. Do you still in your present-day practice leave that same margin?

A. No, sir. We had a very thorough study made by our efficiency men, and we found that by making a two-way cut [fol. 521] at the Pittsburgh Plate Glass Company and assuring us a square corner, that our cutting can be done now with a margin at the top and one side instead of at the top and two sides.

Q. You only leave a one-inch margin now on one side? Is that what I understand?

A. Yes, sir; and in some cases, with our experienced and trained operators and the fact that we have made a thorough study of the efficiency, we are able to in some cases

use less than an inch, which we didn't think was possible at that time. Besides, with our present operation, the glass does not get the abuse in pressing and handling that it did in the old rubber bag method and we are not troubled with vents from spurs that we were originally.

Q. This cutting happens before the pressing operation, doesn't it?

A. Yes, sir.

Q. I don't quite understand why the abuse in the pressing operation should affect the cutting that happens before that.

A. Well, in cutting a piece of glass it is necessary to use a pair of plyers so that you break it off in small chips. That starts microscopic vents around the edge, and by the old process of uneven heating and cooling and the tendency to warp, which threw additional strains in the glass, those vents would progress inward more than in our present process where we are not troubled with the bowing and uneven heating, and we don't need to handle the glass as much as we did in putting it in bags and wrapping it up and evacuating it, so our problem isn't as great now as it was originally.

Q. Do you ever use less than an inch margin on some of this cutting?

A. Yes, we do.

Q. Do you ever use less than half an inch? I am speaking of the present operation.

[fol. 522] A. I believe we do for certain kinds of breaks. For instance, where a break starts with an inch at one edge and tapers gradually so you have an inch to catch hold of, or if it is a contour to give you more of a margin to cut, and it depends on how long the cut is. I would say in some cases, depending upon the nature of the cut, we use less than half an inch.

Q. You have stated a number of defects in the manufacture of this laminated glass. Is it not a fact that the following defects, namely, waves, strings, seeds, blisters, stones, ream, bloach, over-thickness nine thirty-seconds, and under-thickness seven thirty-seconds, as you have described them in your previous testimony, are defects which relate solely to the plate glass before it is fabricated into laminated glass?

A. Generally, but waves not necessarily, as pyralin has a property of causing waves at times. The glass has to

bend to accommodate itself to the thickness of the pyralin. Over-size or under-size is due to the thickness of glass, of course, but it is only the result of getting the combination of two extreme, heavy pieces on the lower side that will cause you the reject, so that as far as combining it is concerned, it is a function of the lamination department to cause a reject. Otherwise, as I recall the defects that you mentioned, they are defects in glass.

Q. Well, do I understand that the over-thickness and under-thickness, while it is a defect in the glass, for this special purpose it becomes an unsalable piece of laminated glass because of the necessary processing into laminated glass? Is that correct?

A. It becomes unsalable because of the customer's standard, but it was our direct work of putting two wrong pieces together that gave us a reject. If I used a thick piece on one side and a thin piece on the other side, then the product would pass. I just accidentally got the two thick ones to-
[fol. 523] gether or thin ones that caused the reject.

Q. The defect that you testified about and described and which you identified as glass scratches. That might or might not, as I understand it, be in the raw glass?

A. Yes, sir.

Q. When it was received, or it might happen some place in through the process?

A. Yes, sir.

Q. And was that true also of the defect which you spoke of as bulls eye?

A. Yes, sir.

Q. And is the same true of what you identified as sleek?

A. Yes, sir.

Q. And over-size. I take it over-size and under-size is an additional defect from over-thickness and under-thickness?

A. Yes. Over-size or under-size rejects were our responsibility in not getting them to the right shape on our finishing wheels. When we put the edge work on we ground off a little too much. They allowed us a plus or minus of one thirty-second.

Q. That always would happen during the process of manufacture of laminated glass and could not be affected by the size of the raw glass?

A. No, sir.

Q. Now, in your experience in this laminated glass business, when did you first learn of the necessity of cleanliness in the factory?

A. Well, we recognized that as being necessary before we even attempted the product.

Q. You knew that even before you came to the Duplate Corporation?

A. Absolutely.

[fol. 524] Q. And when did you first learn of the fact that pyralin was charged with static electricity which gave it the attribute of attracting particles of dust, lint and so forth?

A. We knew that before I came with the Duplate factory.

Q. And when did you first learn of the necessity of having pyralin that was to be used in the manufacture of laminated glass thoroughly clean?

A. We knew that before we started to manufacture.

Q. And when did you first learn that to allow water or steam to get between the glass plates gave a bad result in the manufacture of laminated glass?

A. Well, we didn't know that until we started to manufacture on a large scale—got into the big production—and then we didn't know the seriousness of it because it was not evident, when an amount of steam entered which was not sufficient to cause that white bloom, and there was contention on that point between all of us until August or September, 1928. Some of us thought a slight amount of steam on there, if it didn't cause a white bloom which would be an obvious defect, would cause no trouble, and we went ahead and manufactured in good faith that the product which didn't show the white bloom would stand up satisfactorily in the trade, and it was not until late in the summer or the fall, as I have just stated, that we began to discover the plates separating and made sufficient observation of samples and plates to prove to everyone's satisfaction that the slightest amount of steam had the effect of swelling the pyralin so that when the laminated plates stood around it would dry out and shrink and pull away from the glass.

Q. But you had not discovered that in your experience prior to your coming to the Duplate Corporation?

[fol. 525] A. No, sir.

Q. Are you able to tell if the raw glass has what is known in the trade, as I understand it, as the wedgy condition,

whether that glass, having that condition, is suitable for manufacturing laminated glass?

A. Well, it is or is not, depending on the degree of wedginess. It is much like over-size and under-size thickness. If the two extremes register on each other, you have a defect and reject; whereas, if they are opposites, where they tend to neutralize each other, you will be all right.

Q. You, as an experienced laminated glass man, would not want to use wedgy glass in the manufacture of laminated glass? Is that true?

A. Well, all glass is wedgy to a fine degree and within the ordinary conditions of wedginess it was all right, but a bad condition of wedgy glass would not produce a product which would be satisfactory to the trade.

Q. Can you state what degree of wedginess would affect the laminated glass? In other words, it is a very small degree, is it not, and when you speak of degree of wedginess which still could be used and the degree of wedginess which would make it unusable, the difference is a very small degree, due to the fact that you press them together and might get a break?

A. I believe that a wedgy condition of ten or fifteen one-thousandths from one end of a windshield to the other would be satisfactory and practical, but a wedgy condition of a thirty-second of an inch, which is about thirty one-thousandths to fifty or sixty one-thousandths, would be impractical.

Q. Anything over ten or fifteen one-thousandths would begin to be impractical at least?

A. That is my judgment now. We have some statistics on that that I could work up. We are limited to a plus or minus of a thirty-second in thickness as well as a plus or [fol. 526] minus of a thirty-second in dimension. If your wedgy condition would cause you to come outside those tolerances, it would constitute a reject.

Mr. Smith: Counsel for the defendants produce the following price quotations which have been submitted by Mr. Higgins, vice-president of the Pittsburgh Plate Glass Company, in accordance with his agreement made while testifying yesterday. They are quotations dated respectively June 21, 1924, July 25, 1925, July 22, 1926, and December 22, 1926.

With the consent of the Master and the counsel for the other side, we should like to turn these over to the Master for the purpose of having them photostated, and I suggest that we should have four photostats made and use one of the photostats in evidence, giving the other copies to the counsel for the plaintiff and defendants, because Mr. Higgins says these are his original file copies, and he would like to have them returned. If there is no objection, we would like to have them photostated.

Mr. O'Shea: There is no objection.

Mr. Smith: Those will be offered in evidence as Defendants' Exhibits "L-1", "L-2", "L-3" and "L-4".

(Hearing was adjourned until further notice.)

* * * * * * *

"NOTE.—There appears at this point in the Record before the Special Master a copy of the Interlocutory Opinion, set forth at length in Volume III at side folios 1052 to 1068 of the printed record."

Mr. Smith: Counsel for defendant respectfully except to that opinion.

[fol. 527] Mr. O'Shea: Counsel for plaintiff now requests the Master to make a specific order setting the time within which defendant shall file the account in accordance with the Master's opinion on this question.

The Master: Such an order will be granted.

Mr. Smith: Counsel for defendant except to the position taken by the learned counsel for the plaintiff, and we further respectfully except to the order of the Master and would ask the Master further when the order has been formulated to note us an exception thereto.

The Master: An exception will be noted.

(Hearing was adjourned until Tuesday, April 12, 1932, at 10 o'clock A. M.)

ORDER RE FILING OF ADDITIONAL ACCOUNT

On application of the plaintiff for order on the defendant, Pittsburgh Plate Glass Company, requiring it to file an additional account showing its costs of glass used by it

and its co-defendant Duplate Corporation, in the manufacture of non-shatterable glass, it is ordered that the defendant file such an account with the Master within four weeks from the date of the decision of the Court, in the event that the Court shall decide that such an account shall be filed.

G. Dixon Shrum.

(Exception noted to defendants.)

[fol. 528] Detroit, Mich., Wednesday, April 13, 1932.

Met pursuant to adjournment.

Present: G. Dixon Shrum, Esq., the Master; Ambrose L. O'Shea, Esq., of counsel for the plaintiff; William Watson Smith, Esq., L. E. Hickman, Esq., counsel for the defendants.

The parties met pursuant to notice at the offices of the Pittsburgh Plate Glass Company, 6045 Hamilton Avenue and thereupon adjourned to the plant of the Ford Motor Company.

A. M. WIBEL, a witness produced on behalf of the defendants, having been duly sworn, testified as follows:

Direct examination.

By Mr. Smith:

Q. Mr. Wibel, where do you live?
A. Oakland Drive, Birmingham, Michigan.
Q. Is that near Detroit?
A. About sixteen miles from Detroit.
Q. And I believe you are connected with the Ford Motor Company?
A. Yes, sir.
Q. In what capacity?
A. Director of purchases.
Q. How long have you been director of purchases?
A. Since the fall of 1927.
Q. Before that were you connected with the company?
A. Yes, sir.
[fol. 529] Q. In what capacity?
A. In charge of the engineering department.

Q. And you had been in charge of that department for some years?

A. Since 1919.

Q. As director of purchases I suppose you are in charge of purchases of the Ford Motor Company?

A. Yes, sir.

Q. Will you state whether or not you are the head of the purchasing department?

A. I am, sir.

Q. The company has recently brought out a new eight-cylinder car, has it not, Mr. Wibel?

A. Yes, sir; Model 18.

Q. What was the car that the company was selling prior to Model 18 called?

A. Model A.

Q. And when was the Model A car first introduced and sold?

A. The latter part of 1927.

Q. Now, will you state whether or not your company adopted any safety glass as standard equipment with the Model A Ford?

A. The windshield.

Q. You used the safety glass in the windshield?

A. Yes, sir.

Q. That was the only place that it was standard equipment?

A. That was the only place that it was standard equipment.

Q. Will you state whether or not safety glass has remained the standard equipment in Ford windshields right down to this time?

A. Since the inception of Model A we have used the windshield for standard equipment right up to the present time.

[fol. 530] Q. You mean you have used safety glass windshields?

A. Yes, sir.

Q. At any time during the years 1928, 1929 and 1930 has there been any real public demand for safety glass in automobiles?

A. There perhaps has been some public demand but not to the extent to influence us necessarily.

Q. Well, how did you come to introduce safety glass in your windshields? Was it on account of any public demand or was it because your company thought it should be done?

A. It was because our company thought it was a precaution of safety taken for safeguarding the public.

Q. And the use of safety glass by the company, has that been because the public demanded it?

A. No, sir.

Q. Why has it been used?

A. Because the Ford Motor Company thought it was a good thing to do.

Q. On the ground of protecting the customers of the Ford from injury? Is that the idea?

A. Yes, sir.

Q. Do you recollect the agreement dated October 17, 1927 with the [redacted] Safety Glass Company of North America?

A. Yes, sir.

Q. Now, without attempting to go into all the provisions of that agreement, do you recollect that the Ford Company agreed to purchase from the Triplex Company half of its Ford safety glass requirements for the period April 30, 1928 to April 30, 1932?

A. Yes, sir.

Q. This contract which was dated October 17, 1927 and which I assume was executed about that time, when did the [fol. 531] Ford Company go into production under that contract?

A. Early in 1928.

Q. And do you remember whether along about May, 1928, there was any change suggested by the Ford Company in the laminating process?

A. Yes, sir, there was along about that time.

Q. What was that change, Mr. Wibel?

Mr. O'Shea: If the Master please, may I interpose an objection on the ground that this testimony seems to me to be immaterial, irrelevant and incompetent in any of the issues in this case.

The Master: We will hear the witness's answer and determine later as to its relevancy.

A. It had to do with the changing of the method of preparing the celluloid sheets for use in the sandwich or laminated glass.

Q. Do you know what had been used for drying the pyralin under the Triplex process?

A. No, I do not.

Q. At any rate the change had to do with the pyralin sheets?

A. If you mean by drying the pyralin the oven arrangement for drying it afterwards, I am thoroughly acquainted with that. I know how that was done.

Q. Was there alcohol used in any part of this drying process?

A. It was a spraying on of alcohol in substitution for the immersion process. I don't remember the exact technical details of that but that was the way I recall it.

Q. Was there any change made with respect to the use of alcohol?

A. I think there was but I don't know the details of that.

[fol. 532] Q. Do you know whether, during the years 1928, 1929 and 1930, the Ford Company and the Triplex Company, or either of them, made any improvements or changes in the process of making laminated glass?

Mr. O'Shea: I have my objection and exception to all this line of testimony?

The Master: Yes.

A. Many changes were made.

Q. State whether or not there was any necessity for changes?

A. There was a great necessity for change.

Q. Why was that, Mr. Wibel?

A. Due to the troubles we were having in the laminated glass.

Q. Did you have many such troubles?

A. We had entirely too many for our own way of looking at it. The glass was being rejected and the losses were so great we bent every effort we could to make these improvements, both ourselves and the Triplex Company.

Q. In general, what were the troubles you experienced with the glass? What was wrong with it?

A. We had separations, discoloration, bubbles, crack strains.

Q. Any dirt between sheets?

A. Dirt between sheets also.

Q. Did these things interfere with the making of a proper windshield?

A. Yes, sir.

Q. Now, take the three calendar years 1928, 1929 and 1930. Will you tell the Master about how many windshields your company was obliged to produce or acquire from the Triplex Company to equip your cars?

Mr. O'Shea: Same objection.

[fol. 533] The Master: Answer the question.

A. I would say approximately five million.

Q. Five million windshields?

A. Yes, sir.

Q. To equip how many cars?

A. In the neighborhood of four million.

Q. In other words, it took, as I understand you, about five million windshields to equip about four million cars?

A. Yes, sir.

Q. Which means that about 20 per cent. of the windshields would be defective,-does it not?

A. Yes, sir.

Q. For the reasons you have described these various defects?

A. Chiefly those reasons.

Q. Now, I have asked you your experience during the three calendar years, and inasmuch as the accounting period only covers 1928, 1929 and the first five months of 1930, making twenty-nine months, I will ask you to tell the Master whether the production of cars and windshields was running at approximately the same rate during the twenty-nine months as during the thirty-six months.

A. I would say it would be very nearly so.

Q. What have you to say as to 20 per cent. rejections in windshields for defects? How much too high is that in your opinion as a manufacturer?

A. Offhand I would say it would be approximately ten times too high.

Q. These rejections for defects, did they occur with respect to windshields furnished by the Triplex Company to you?

A. Yes, sir.

Q. And did they also occur in windshields made by you?
[fol. 534] A. Yes, sir.

Q. Using the Triplex process?

A. Yes, sir.

Q. Will you state whether or not the purchasers of Ford cars returned any considerable number of windshields to your company on account of these defects?

A. Many of them were returned to the branches and then returned to us here.

Q. Did that put your company to a loss and expense?

A. Very great expense; had to be replaced.

Cross-examination.

By Mr. O'Shea:

Q. Mr. Wibel, in this million rejects—that included rejects of your own manufacture as well as the Triplex manufacture?

A. Yes, sir.

Q. Have you any figures in your mind as to what proportion of that million rejects were your own manufacture and what proportion were Triplex?

A. I would say offhand it was about fifty-fifty. We were both using the same process.

Q. You are depending entirely upon your recollection as to that, or did you ever check it up?

A. I have had it checked. As a matter of fact, we constantly check that kind of thing. Offhand I would say the rejections were about as bad one way as they were the other.

Q. Coming now to this defect of separation. You first under your contract with the Triplex requested them not to seal the windshield, did you not?

A. At one time we made some laminated glass without sealed edges. How long that experiment was carried on I can't recall. I have no record on that, but I know there were [fol. 535] some of them made without having sealed edges.

Q. Do you remember whether the unsealed windshields carried over the period of about from June, 1928, until the fall of 1929?

A. No, I do not.

Q. Well, in any event, later on the process was changed so as to seal the edges of the windshield, was it not?

A. Yes, sir.

Q. Did you get better results thereafter with respect to the separation defect?

A. I think the results obtained as a whole were better on sealing the edges.

Q. Well, now, originally, when you made the contract with Triplex, the Triplex product was a sealed product, was it not?

A. I don't recall that actually but I think so because we started with a sealed product in the beginning.

Q. And then your company requested the Triplex Company not to seal. Is that not the fact?

A. I couldn't tell you whether that was worked out mutually or whether it was a request on our part.

Q. Well, even if it was worked out mutually, you acquiesced in the change?

A. We acquiesced in the change, yes.

Q. But you don't recall whether you specifically requested it or not?

A. I don't recall whether it was something worked out between our engineers and the Triplex or whether it was a request on our part or a request on their part. I couldn't tell you that.

Q. Now, on this defect of discoloration. Did that run through the whole period of the contract, which I understand was from the early part of 1928 through the account-
[fol. 536] ing period, namely, June, 1930, or was the greatest trouble with that discoloration some particular period in between that?

A. I would say, as I recall it, our greatest trouble along that line was in the beginning.

Q. In the very beginning?

A. Yes, and perhaps faded out as we learned how to do the job better and as we perfected it.

Q. Well, now, you required the Triplex Company to use a German pyralin product, did you not? Do you recall whether you did ask them that?

A. I don't recall that. I think there was a process used and that was the name applied to it, but the technical end I am not so familiar with.

Q. You don't remember whether your company did require the Triplex Company to purchase a German pyralin?

A. I believe the greater part of the celluloid was purchased by the Ford Motor Company.

Q. And did you buy that——

A. We did buy a German celluloid; yes, sir.

Q. And that celluloid you purchased you delivered to the Triplex Company for use in their product which they manufactured for you?

A. Yes, sir.

Q. Was that German product a cheaper product than the American celluloid?

A. As to price you mean?

Q. Yes.

A. Yes, sir.

Q. Are we to understand from the fact it was a cheaper product as to price it was also a poorer quality?

A. I wouldn't say so. The price situation wouldn't always be the evidence of that.

Q. It is a fact, is it not, that one of the principal causes for discoloration lies in the pyralin?

[fol. 537] A. I think so; yes, sir.

Q. As a matter of fact, isn't that the only cause for discoloration of non-shatterable glass?

A. I don't know.

Q. You did, of course, stop using this German celluloid at a certain period in this accounting period from 1928 to June, 1930?

A. No, I don't think so. We still have German celluloid on hand.

Q. But are you using it in all your product?

A. I don't think so. Not in all the product, no.

Q. Well, in this period, 1928 to 1930, didn't you discontinue, at least to some extent, the use of the German celluloid?

A. We did to some extent because the States suppliers came more directly back into line and celluloid from the States was then purchased to quite a great extent.

Q. You mean the States suppliers lowered their price?

A. Very, very materially; yes, sir.

Q. Did they get it down as low as the German celluloid?

A. Finally I believe lower.

Q. Was that the only reason you discontinued the use of the German celluloid in some of your product?

A. That was one of the reasons and one of the other reasons was we wouldn't buy in Germany if we could do as good or better in the States.

Q. Is it not a fact that one of the reasons for the discontinuance of the German celluloid was your engineers or yourself felt that some of this discoloration was caused by the German celluloid?

A. I think so. I think we had doubts along that line. As a matter of fact, we checked that point up very carefully. Before we went that far with it we sent our engineers to Europe to check that also.

[fol. 538] Q. And your conclusion was that partly, at least some of the discoloration was caused by the celluloid? Is that not a fact?

A. That perhaps that would be a contributing factor in the situation.

Q. Did you find this to be the fact: that as you increased the use of the German celluloid you got greater rejects in your finished product?

A. I wouldn't say that. I couldn't make that statement. I would not say that was so.

Q. You mean you don't know that was so or not?

A. No; because I have felt the celluloid, no matter from what source it was procured, was a contributing factor in the discoloration.

Q. I say you are not prepared to say as to whether, as you extended the use of the German celluloid, you got a greater increase of rejects.

A. I am not prepared to say that; no, sir.

Q. Now, you say you had to obtain five million windshields to equip four million cars?

A. Approximately so.

Q. Leaving a million excess over the number of cars. Was that million all rejects or were some of those normal rejects for breakage in transit or at the distributors or because of poor handling, or something of that sort, or accident?

A. They were replacements for every possible thing that could happen to laminated glass.

Q. That included accidents to the windshields which may have been caused by workmen dropping the windshields or something of that sort?

A. It included everything that happened to laminated glass wherein we had to procure another laminated sheet to take care of something that went out of the picture before.

Q. So that the whole million were not what we usually speak of in the trade as rejects because of being defects?

[fol. 539] A. I wouldn't say so. Any one that was broken by accident would change that statement.

Q. I thought that was what you intended to testify to.

A. Yes, sir.

Q. You say you adopted only the windshield as standard equipment in Model A. Is it not a fact, Mr. Wibel, that you also adopted as standard equipment, on such cars as used them, the wings?

A. Wings for what?

Q. For the open cars I think they were used on.

A. I don't recall whether that was standard equipment or optional equipment. As far as the body glass was concerned, it was optional.

Q. You mean the body glass was optional equipment?

A. Yes, sir.

Q. And the windshield was standard equipment?

A. Yes, sir.

Q. And you don't recall whether you had as standard equipment the so-called wings which were used on open cars?

A. I don't recall whether that was standard equipment or optional; no, sir.

Q. Mr. Wibel, all your testimony this morning relates to what is known as sheet glass as distinguished from plate glass?

A. No, sir; not necessarily.

Q. Well, in this period, in the beginning of the contract, 1929 to 1930, did you or Triplex use any plate glass in the windshields?

A. No, sir.

Q. Well, then, all the pertinent testimony with respect to that period relates then solely to sheet glass?

A. I believe so. I think plate glass was used somewhere beginning about the middle of 1931.

[fol. 540] Q. From your experience are you able to state as to whether or not you have more difficulties with the sheet glass than you do with the plate glass in this product?

A. As a matter of opinion, I think you would have more trouble with the sheet glass.

Q. It is your opinion, as I understand it, Mr. Wibel, that an experienced manufacturer of this laminated glass ought not to have more than 2 per cent. rejects?

A. I would say approximately that he should not have more than that.

Q. Are you able to state, Mr. Wibel, as to whether the crack strains constituted the biggest proportion of the rejects?

A. I am not from a standpoint of actual checking, but from a matter of opinion I would say that they were not.

Q. They were not?

A. No. Not when you figure that particular point with reference to all the rest.

Q. Well, did they constitute the greater part with reference to any other single one?

A. I couldn't state that definitely either. I don't know.

Redirect examination.

By Mr. Smith:

Q. Mr. Wibel, you have been asked about the use of German pyralin sheets. Will you tell the Master whether or not in your opinion those were good and proper sheets to use?

A. We think they are good and proper sheets, yes, sir.

Q. And when you began to use pyralin sheets manufactured in the United States did you also have trouble with [fol. 541] rejects of your laminated glass windshields?

A. We had trouble no matter what source the sheets came from.

Q. Now, you were asked whether this million rejects out of five million windshields included ordinary replacements, such as where a windshield would be broken in transit or something of that kind. Will you please tell whether or not not the ordinary replacements would be very small compared to the million windshields?

A. It would be a very, very small part of them.

Q. Would they amount to even as much as 1 per cent.?

A. In percentage I have no definite figure on that, but I know the greater part of our trouble was not from replacement of that kind. It was from the other defects which I have already mentioned.

Recross-examination.

By Mr. O'Shea:

Q. You are the purchasing agent or director of purchases, which means you do the purchasing for the Ford Motor Company. Is that correct?

A. Yes, sir.

Q. You are not particularly familiar with the production department?

A. What do you mean by the production department?

Q. The manufacturing department; the department in which this laminated glass was produced.

A. I am very familiar with it.

[fol. 542] R. H. McCarroll, a witness produced on behalf of the defendants, having been duly sworn, testified as follows:

Direct examination.

By Mr. Smith:

Q. Mr. McCarroll, where do you live?

A. Dearborn, Michigan.

Q. Is that where we are this morning?

A. That is part of the same town, yes.

Q. And how far do you live from this Ford plant in which we are taking this testimony?

A. About five miles.

Q. Are you connected with the Ford Motor Company?

A. Yes, sir.

Q. How long have you been connected with the company?

A. Between sixteen and seventeen years.

Q. Continuously?

A. Yes, sir.

Q. And what is your present position, Mr. McCarroll?

A. In charge of chemical and metallurgical work.

Q. And how long have you held that position?

A. About eight years.

Q. Last past?

A. The past eight years.

Q. Do you remember the agreement between the Ford

Motor Company and the Triplex Safety Glass Company of North America, made on or about October 17, 1927?

A. I do.

Q. That was the agreement under which the Ford Company was licensed to make safety glass under the Triplex patents and process, was it?

A. Yes; sir.

[fol. 543] Q. And it was that agreement under which the Ford Company agreed to purchase from the Triplex Company half of the Ford Company's monthly safety glass requirements for the period April 30, 1928, to April 30, 1932?

A. It was.

Q. Were you in touch with the production and the acquisition by the Ford Company of the safety glass under that contract?

A. I was.

Q. Do you remember about when the Ford Company went into production of safety glass under that contract?

A. I would say it was the early part of 1928—the latter part of 1927.

Q. And do you remember whether along about May, 1928, you got into substantial production?

A. May, 1928, we were in quite substantial production; that is, for about the first time.

Q. Now, along about May, 1928, was there any change suggested in the laminating process of the Triplex Company?

A. There was.

Q. What was that change, Mr. McCarroll?

A. It was the substitution for what might be termed the alcohol immersion step by spraying the celluloid with a mixture of high-boiling solvents.

Q. Under the Triplex process, as I understand it, up to about May, 1928, alcohol was used for drying the sheets of pyralin that were used in the laminated glass?

Mr. O'Shea: Mr. Master, I would like at this point to renew my objection to the testimony on the grounds it is incompetent, irrelevant and immaterial; and so I may not interrupt may I have that objection to all testimony along this line?

[fol. 544] The Master: You may. Please answer the question.

A. Alcohol was used but I wouldn't call its purpose drying. Its purpose may more nearly be described as softening the celluloid sheet to allow lamination. At any rate, alcohol was used to that time and not to the same extent afterwards.

Q. And the change was in substituting something else for the alcohol?

A. It was.

Q. And what else was substituted for the alcohol under this change?

A. A mixture of high-boiling solvents. Carbitol was the name of one of them and dibutylphthalate I believe was the other one.

Q. Who suggested the change?

A. I believe most of the experimental work was done here. The suggestion came to me by A. C. Nixon.

Q. Who was he?

A. He was an employee of the Ford Motor Company under my jurisdiction.

Q. Under your supervision?

A. Yes, sir.

Q. In other words, the change came as a suggestion from the Ford Company and not as a suggestion from the Triplex Company?

A. I understand that to be true.

Q. Now, during the years 1928, 1929 and 1930, will you please state whether or not the Ford Motor Company and the Triplex Company, or either of them, made numerous changes or improvements in this process of making laminated glass?

A. Both of them made numerous changes and improvements.

Q. Was there any reason why changes should be made or improvements should be made during that period?

[fol. 545] A. There certainly was.

Q. What was the reason, Mr. McCarroll?

A. A product which we didn't consider satisfactory.

Q. That was during 1928, 1929 and 1930?

A. However, that applies most to the earliest produced. The earliest produced was by far the worse.

Q. The difficulties were mostly at the beginning?

A. Yes, sir.

Q. But did they extend during the entire period I have mentioned?

A. Some of them to a limited degree; most of the difficulty disappeared.

Q. But some extended over the entire period?

A. Yes.

Q. What was the trouble experienced?

A. The main trouble experienced was the formation of bubbles, resulting in separation and impaired vision.

Q. Were there any other troubles?

A. The other troubles were discoloration, strain cracks.

Q. And dirt?

A. Dirt getting in in the process or being in the celluloid sheets, strain cracks and loosening—separation of the edges.

Q. When you say "strain cracks" you mean cracks that appear in the glass?

A. Cracks that appear in the glass due to strain set up in the manufactured product.

Q. That is, after the glass was in the form of laminated glass these cracks appeared?

A. Yes, these cracks appeared. Sometimes they appeared immediately and sometimes later.

Q. Were these defects that you have mentioned trifling or were they serious?

[fol. 546] A. We considered them very serious.

Q. Do you recollect during the three years, 1928, 1929 and 1930, approximately how many windshields you had to manufacture or acquire from the Triplex Company to equip the cars you brought out during that period?

A. It was approximately five million.

Q. Approximately five million windshields?

A. Yes, sir.

Q. And approximately how many cars were brought out in that period?

A. Approximately four million.

Q. Then that means there were approximately 20 per cent. rejections in the windshields?

A. Rejections and replacements.

Q. Yes. In all 20 per cent.?

A. Yes, sir.

Q. What proportion of those were rejections for defects

in the windshields and what proportion just ordinary breakage due to accidents in the transportation?

A. That varied as time went on. In the early part the vast majority were due to replacements of those in service.

Q. I suppose it is fair to say in a new process like this the greater difficulties would be at first?

A. Yes.

Q. And you gradually ironed them out?

A. Yes, sir.

Q. Do you mean to say that any time during those three years your replacements of windshields due to just ordinary replacements, such as breaking a windshield in transportation or maybe one broken by accident, would amount to any very large proportion of the whole?

A. No, sir, not large proportion.

[fol. 547] Q. It would be a small proportion, would it?

A. Yes, sir.

Q. I have asked you about the three calendar years, 1928, 1929 and 1930. Now, as the accounting period here covers 1928 and 1929 and only the first five months of 1930, I would ask you whether or not the production of cars and windshields during the twenty-nine months was running at approximately the same rate as during the longer period of thirty-six months you have mentioned?

A. At approximately that same rate in proportion, yes, sir.

Q. Now, state whether or not there was any considerable number of rejections of windshields on the part of purchasers of cars from the Ford Company.

A. There was.

Q. A large number?

A. A large number, yes, sir.

Q. Will you state whether or not those applied to the laminated glass purchased from the Triplex Company as well as that you produced yourselves?

A. They did to both.

Q. About in what proportions between the two?

A. As far as I can remember, our records, as an average about the same proportion.

Q. About the same proportion of rejections in your product as in the Triplex product?

A. Yes, sir.

Q. What are wings that have been spoken of here with respect to open automobiles?

A. They are small glass mounted on the windshield supports at an angle to a bracket to deflect the air at the sides of the cars.

Q. What size are they about?

A. I would estimate they would be about fifteen inches long by eight inches wide.

[fol. 548] Q. One of those on each side of the car?

A. Yes, one on each side of the car. I don't remember the exact size.

Q. About what is the area of the windshield in ordinary cars? About four square feet?

A. About four square feet.

Q. In this period we have spoken of here, 1928, 1929 and 1930, were most of the cars you sold closed cars or were they mostly open cars?

A. I believe the greatest number were closed cars.

Q. Now, these wings, during this period of three years, will you state whether or not they were made of laminated glass?

A. They were.

Q. And was that standard equipment or optional equipment?

A. I am not sure of that question now.

Q. Were there any large amount of these wings produced in aggregate square feet of glass as compared with the aggregate square feet of glass in the windshields produced?

A. The proportion would be small, but I can't give you any definite figure on that.

Q. And did you or did you not experience the same troubles in these defects you have mentioned with respect to the wings as with respect to the windshields themselves?

A. I believe the same troubles were experienced but not quite to the same extent.

Q. I think it has been brought out in cross-examination of the preceding witness, Mr. Wibel, that during 1928, 1929, and I think the first half of 1930, or perhaps all of 1930, I don't recall, your Ford windshields were largely made of sheet glass as distinguished from plate glass. I mean the laminated glass windshields were so made.

A. That is true.

[fol. 549] Q. What have you to say about the laminated glass with respect to having the sheets not separate and things of that kind as compared with plate glass? Is there any superiority between the two?

A. I believe it is easier to get plate glass to adhere than it is sheet glass, but the nature of the break given by an object striking a sheet glass windshield has some advantages over the same break caused in the same way on a plate glass windshield.

Q. You mean after the windshield is in service?

A. Yes.

Q. You mean if a man is driving with a certain windshield, and a stone strikes the windshield?

A. Yes.

Q. Can you tell us a little more clearly what that is so the Master will understand the difference?

A. It is a little hard to describe except from pictures, but the surface of the glass being the strongest part, and that being removed in grinding the glass, you get a different type of fracture when, we will say, a small stone strikes a sheet glass windshield than you do when it strikes a plate glass windshield, and there is a little less danger of glass being thrown from sheet glass than there is from plate glass. It is a different type of break.

Q. I presume shortly after your company made the contract of October 17, 1927, with the Triplex Safety Glass Company the latter informed your company about the process that it was using?

A. Yes, sir.

Q. And did you learn what the process was?

A. I did.

Q. That was the process that was turned over to the Ford Company to use?

A. Yes, sir.

Q. Will you tell the Master whether or not it would have been feasible to use that process without change and pro-
[fol. 550] duce windshields for your cars commercially of proper quality?

A. First, from the standpoint of quantity it would have been impossible to produce a sufficient number with the description turned over as it was developed only for a small

scale production. There had to be equipment developed to handle the process on a commercial scale.

Q. That is as to quantity. Now, what about quality?

A. As to quality, in the light of future information we believe that the windshields that were produced by the process as used at that time—that is, the original process—were not satisfactory because they would not stand up a sufficiently long time in service.

Q. So that in your opinion it was necessary to change this process to get out a proper windshield in commercial production?

A. Yes, sir.

Q. And your company did have it changed?

A. We helped in that.

Q. Will you tell the Master whether or not the Ford Company has a careful inspection of materials that it requires; such, for example, as this glass and pyralin which were used in making laminated glass?

A. Yes, sir, I believe we have as careful an inspection as it is possible and feasible to arrange.

Q. And that includes not only these items but all the items you purchase, does it not?

A. Yes, sir; not only the raw materials but the finished product.

Q. It has been brought out here that the pyralin that was used, or a considerable part of it at least, was German pyralin. Will you state whether or not that passed your inspection and tests of our company?

A. It did.

Q. And state whether or not in your opinion it was a good and satisfactory quality of pyralin.

[fol. 551] A. We believe that it was.

Q. Now, afterwards I believe that the American producers—I mean producers in the United States of America—reduced their prices, I think Mr. Wibel said, to as low or a lower point than the German prices, and as I understand it you used some pyralin produced in the United States.

A. Yes, sir.

Q. Now, when you used the pyralin produced in the United States state whether or not you experienced defects in the laminated glass such as you have described.

A. I believe we would have to divide that into two questions. The pyralin in the United States was continuously improved also, and when we started using the German pyralin the pyralin that was obtainable here was of about the same quality as that, and as time went on the American manufacturers not only reduced their price but improved their quality.

Q. What about the Germans?

A. That improved but not quite as rapidly, but at all times within our specifications.

Q. But they at least improved it enough to keep it up to your standard of specifications?

A. Yes, sir.

Q. When you began to use pyralin sheets produced in the United States did all of these defects in the laminated glass disappear?

A. No, sir.

Q. You experienced the same kind of defects afterwards, did you?

A. Yes, sir.

Cross-examination.

By Mr. O'Shea:

Q. Do you know, Mr. McCarroll, whether it was the Ford Company who required the use of the German pyralin?

[fol. 552] A. I don't know that we could use the word "required." I know the material was purchased by the Ford Motor Company, and after sending a chemical engineer to Germany to inspect their manufacturing facilities and the quality of their product, holding him there until we got some over to this country, inspecting it here and making windshields from it, we decided to use it here and purchased it also for the Triplex use.

Q. Do you remember whether Triplex objected to the use of the German pyralin at all?

A. Several times they complained it was harder to handle. That was their chief complaint.

Q. Do you remember whether or not it was your opinion at the time the German pyralin was used that because of its use there was created some of these discoloration defects?

A. I would say that the German celluloid, at the time we originally started using it, in comparison with the American, discolored it at about the same rate. In the later days of its use the Americans had improved theirs more quickly, so that the German discolored at that time more.

Q. When did you change back from the German to the American pyralin?

A. I can't give you that date. It was a slow process, starting probably to take place late in 1930 or early in 1931.

Q. So that up until June, 1930, you used the German pyralin?

A. Not entirely, no.

Q. To the greatest extent of your production?

A. Yes, sir. The proportion varied.

Q. Do you know whether you got better results at the time you were using the American pyralin from the American pyralin than you did from the German pyralin?

[fol. 553] A. You mean when we started using the German pyralin?

Q. Let us say the first half of 1930.

A. I believe at that time the results as far as color goes were better in the American. The results as far as other defects, which are our major defects, were about the same.

Q. It didn't have any effect on discoloration?

A. Not much.

Q. The discoloration didn't amount to much?

A. It had decreased at that time. It was a minor reject in point of percentage at that time.

Q. When you say "at that time" you mean the first half of 1930?

A. No, I said late in 1930 or early in 1931.

Q. But you were still having trouble with the German pyralin because of the resulting discoloration?

A. And still having trouble with the American also.

Q. Let me finish the question please. You were still having trouble with the discoloration from pyralin in the early part of 1930?

A. Yes, sir.

Q. And in the early part of 1930 are you able to state whether you were having more trouble with the German pyralin than you were with the American pyralin?

A. You mean that question as to color only?

Q. Yes, let us put it as to discoloration first.

A. Yes, sir.

Q. Well, what other troubles were you having with pyralin in the early part of 1930? That is, the first half of 1930.

A. Openings, open edges, improper lamination, gradually resulting in openings and also a condition of the character of the glass that was not satisfactory.

[fol. 554] Q. Those were all due to the pyralin that was used at that time?

A. No; only partly due to the pyralin.

Q. You sometimes have a trouble that is referred to in the trade as haze, do you not?

A. Yes, sir.

Q. Are you able to state whether that condition was caused or resulted to a greater extent from the use of German pyralin than it did from the use of American pyralin?

A. In the later period, yes; in the earlier period, no.

Q. What do you mean by "the earlier period"?

A. I mean when we first started using the German celluloid the haze was no more than in the American product obtainable at that time.

Q. That was back in 1927 when you started?

A. We didn't get German celluloid as early as that.

Q. In 1928?

A. I can't give you the date when we first started to get German celluloid.

Q. But in the later period, namely, in the latter part of 1929 and early part of 1930, you were having more trouble caused by haze in the German pyralin than you were in the American pyralin? Is that correct?

A. Yes, sir.

Q. What pyralin are you using now, Mr. McCarroll?

A. I believe it is coming from three or four different manufacturers. I haven't had occasion to check it recently.

Q. Is it American pyralin?

A. Yes.

Q. Do you know whether or not it was at the Ford Company's request that the edges of the windshields were left unsealed?

[fol. 555] A. My understanding of that is that the edges were originally sealed according to the original Triplex recommendations, and that later on Triplex developed a transparent seal which they recommended and which we approved and which was adopted.

Q. When did they adopt the transparent seal?

A. I can't give you the date of that.

Q. Wasn't there a period in between the black sealing and the transparent sealing when there was no sealing at all?

A. Not that I remember.

Q. You don't remember whether there was any period?

A. I don't remember.

Q. You don't recall whether the Ford Company directed the Triplex Company not to seal the glass with a black seal, we will say?

A. Whether not to?

Q. Yes.

A. No, I don't.

Q. You don't know.

A. No.

Q. I understand that you consider that 20 per cent rejections and replacements is too high.

A. Yes, sir.

Q. What would you consider the proper rejections, let us say, without replacements in a factory efficiently run?

A. Naturally, we would like to get it as low as possible, and the figure we had set in our minds was we would like to get it down to one-tenth of that if possible.

Q. About 2 per cent.?

A. Yes.

Q. Rejections only?

A. Yes.

[fol. 556] Q. You testified, as I understood your testimony, that during the period from 1928 to the middle of 1930 you had about a million rejected windshields.

A. Rejections and replacements.

Mr. Smith: I think inadvertently you haven't stated it quite accurately. He stated during the three full years.

Q. How many would you say you had during the whole year 1928, whole year of 1929 and half of 1930?

A. I would say that would be in the proportion as thirty-six is to twenty-nine. In other words, twenty-nine thirty-sixths of a million. I can't give you that offhand.

Q. It is in round figures something like 800,000?

A. Something like that.

Q. How many of those were replacements? Can you tell?

A. As to definite figures, no.

Q. Can you tell approximately? Would there be 10 per cent.?

Mr. Smith: Mr. O'Shea, when you say "replacements" do you mean the ordinary replacements that would happen to any windshield, or do you include any defects?

Q. You understand what I mean, don't you?

A. I do not understand your question fully; no, sir.

Q. When I speak of replacements, Mr. McCarroll, I am not including any rejections. I am referring to only a replacement that was caused by an accident to a windshield or something of that sort after it had gone out and after it had passed your inspection as being a good windshield.

A. I can't give you definite figures on that without referring to our records.

[fol. 557] Q. Can you give approximate figures as to how many of the 800,000 are included as replacements? Can you say it was 10 per cent?

A. I couldn't like to hazard a guess as to that, not having referred to the records lately.

Q. This change in the process from the alcohol to the high-boiling solvents. You stated in your direct examination, as I understand it, that Mr. Nixon spoke of that to you.

A. He reported that to me.

Q. Was Mr. Nixon in touch from time to time with the Triplex engineers?

A. He was, as also were others.

Q. Any others in your factory?

A. Yes.

Q. You don't know then as to whether Mr. Nixon and others who reported changes in the process to you had discussed those changes with the Triplex people or not?

A. I certainly think they have.

Q. So you don't know where the original suggestion came from?

A. I believe it was originated with Mr. Nixon.

Q. You say you believe. Do you know it?

A. I have his written reports saying he did and I have every reason to believe it.

Q. You have his written report saying Mr. Nixon suggested the change from alcohol to high-boiling solvents?

A. I had a note on the subject at the time.

Q. Do you have it now?

A. No, sir.

Q. Do you know whether you can find it now?

A. I know I can't find it now. I have some of the notes of Mr. Nixon on the original process which I did find and can produce.

[fol. 558] Q. Is Mr. Nixon connected with the Ford Company now?

A. He is not, no.

Q. Do you know a Mr. Pfarr who was connected with the Triplex Company?

A. I remember the name. I don't remember the gentleman personally.

Q. Did you ever discuss this change to the high-boiling solvents with a man by the name of McCullough?

A. I don't remember talking to Mr. McCullough about that. At the time the original work was done on that I don't remember how closely Mr. McCullough was connected with it. He was connected very closely with it at its inception, but got out of touch with it some time later.

Q. Who was Mr. McCullough?

A. Mr. McCullough was in the employ of the Ford Motor Company under my department at the time the original Triplex work was done.

Q. Most of the windshields that were produced by you and Triplex in this period from 1928 to June, 1930, were made of sheet glass rather than plate glass, were they not?

A. Yes, sir.

Q. Were there any plate glass made by either of you during that period?

A. I don't believe there were as regular production. There were some experiments carried on in the latter part of that time.

Q. Sheet glass has the attribute of having waves in it, has it not?

A. Yes, sir.

Q. And that isn't true of plate glass?

A. That is correct.

Q. So that you are apt to have more separation as well as strain cracks in sheet glass than you are in plate glass? Isn't that a fact?

[fol. 559] A. When laminated under a press.

Q. And one of the reasons for that is because of the waves in the sheet glass, as I understand it.

A. That is one of the reasons, yes.

Q. Do you draw a distinction between discoloration of the laminated sheet and a laminated sheet that you speak of as impaired vision?

A. When I was referring to impaired vision then I was referring mostly to the fact so many bubbles formed you couldn't get good vision through the windshield, although there was of course some discoloration.

Q. But impaired vision might be bubbles without discoloration? Isn't that a fact?

A. No, sir; I never saw any with bubbles without discoloration. There was a varied amount of discoloration but all had some discoloration.

Q. So discoloration would include the term impaired vision?

A. When I said that I was thinking more of the bubbles impairing the vision, because if it turns somewhat dark, you can still see through it—kind of an outline—but when you have bubbles that impair the vision, why you can't.

Mr. O'Shea: I would like to have on the record counsel for plaintiff objects to all of the testimony of the witness on the ground that it is irrelevant and immaterial, and moves to strike it out.

Mr. Smith: We object to the motion to strike out.

The Master: The objection is overruled and exception noted to plaintiff.

Redirect examination.

By Mr. Smith:

Q. Mr. McCarroll, I am not sure I understood your answer exactly, but I think in answer to a question of Mr. [fol. 560] O'Shea's you stated that when sheet glass was used in making laminated glass under a press there was more likelihood of strain cracks than where plate glass was so used. Is that what you said?

A. Yes, sir.

Q. Do you lay any stress on the use of a press as distinguished from some other way of making laminated glass?

A. Yes, sir.

Q. Will you tell us what you mean by that?

A. When the pressure is applied with a press you are applying it with two platens which are parallel to each other and cannot follow the contour or waves in the glass;

whereas, when you press it with either liquid or gaseous pressure, pressing equally from all sides, the same objection does not come into the picture.

Q. What kind of pressure did you use to make this laminated glass at the outset in 1928?

A. Presses—platen presses.

Q. Was that the process the Triplex was using?

A. Yes, sir; it was.

Q. Did you make any change in the method of applying pressure later on as you developed this process?

A. Yes, sir.

Q. What change did you make?

A. We pressed the glass in other ways, the last of them being the autoclave. In between that was the Stokes press.

Q. What was the Stokes press?

A. The Stokes press was a press with rubber diaphragms.

Q. The autoclave is a method of putting the glass sandwiches in a receptacle and then introducing a liquid under pressure?

A. Yes, sir.

[fol. 561] Q. By the pressure you force the pieces of glass and the sandwich together. Is that the idea?

A. Yes, sir.

Q. Is that the present method you use for making laminated glass?

A. Yes, sir; it is.

Q. For about how long have you been using that method?

A. I would say the first production on that was probably about a year and a half ago.

Q. That would be the latter part of 1930 or the early part of 1931?

A. About that time. I cannot be absolutely sure of that date.

Q. Now, in making laminated glass from sheet glass using the autoclave method, is there any disadvantage in the laminated glass as compared with laminated glass made from plate glass in the same method?

A. Very little disadvantage if any in that case we believe.

Q. And take the matter of strain cracks. Is the sheet glass any disadvantage as compared to the plate glass in using the autoclave pressure?

A. Not as far as lamination goes; no, sir.

Q. Well, it was the lamination, as I understand, that produced the strain cracks?

A. Yes, sir.

Q. Is it your opinion the sheet glass would be as good as the plate glass from that aspect if used in an autoclave?

A. Yes, sir.

Q. Now, were the most defects in this laminated glass observed when you began the process or at the end? In other words, did the process improve?

A. Yes, sir. Most of the defects were at the beginning and the process did improve.

[fol. 562] Q. And you gradually ironed them out?

A. Yes, sir.

Q. And did that apply to this sheet glass laminated windshield?

A. Yes, sir.

Recross-examination.

By Mr. O'Shea:

Q. You use plate glass now as your standard equipment, don't you?

A. Yes, sir, we do.

Q. You use no sheet glass at all?

A. I believe there is some sheet glass being still used in commercial jobs.

Q. On trucks and things of that sort?

A. Yes, sir. What proportion I don't know. I understand there is some.

Q. As to pleasure cars you have some feeling there is an advantage to plate glass over sheet glass?

A. Yes, sir.

Q. What is that?

A. Improved vision.

Q. And why does the sheet glass not have as good a vision as plate glass?

A. Because in sheet glass, due to the irregularities in the surface, the light rays are deflected more in passing through the thick section rather than the thin section.

Q. And the irregularity in the surface is due to the waves in the sheet glass?

A. Yes, sir.

Q. So that is what causes the strain in the sheet glass—these waves? Isn't that so?

A. The waves in sheet glass cause the strain when laminated under a press, which does not touch evidently all portions of the sheet, yes, sir.

[fol. 563] When did you stop using the presses?

A. I can't give you that date offhand.

Q. Can you state whether you stopped before or after June, 1930?

A. I would imagine at that time we were doing part one way and part the other way.

Q. When you say "the other way" what do you mean?

A. I mean part in an autoclave and part under platen presses, although, as I say, I can't be sure of that date unless I refer to our records.

Q. Is it not a fact that prior to 1930 whatever was done with an autoclave was more or less in an experimental stage?

A. It was experimental at first and then gradually increased and went into production.

Q. And that you really got into the production in autoclaves after June, 1930? Is that not a fact?

A. I am not sure of the date.

(Adjourned until 2:15 P. M. at the offices of the General Motors Company.)

2:15 P. M.

Met pursuant to adjournment.

W. A. Fisher, a witness produced on behalf of the defendants, having been duly sworn, testified as follows:

Direct examination.

By Mr. Smith:

Q. Mr. Fisher, where do you live?

A. Detroit, Michigan.

Q. Are you an official of the Fisher Body Corporation?

[fol. 564] A. President.

Q. And how long have you been president?

A. Possibly five years, I would say, or more.

Q. Will you state whether or not the Fisher Body Cor-

poration purchases glass for all General Motors Company cars?

A. All closed cars.

Q. There has been testimony in this case about laminated glass, which means safety glass. Do you understand that, Mr. Fisher?

A. Yes, sir.

Q. Will you state whether or not there was any demand for laminated glass on the part of the public during the years 1927 and 1928?

A. I would say no.

Q. What, in your opinion, was the reason for the lack of public demand at that time?

A. Well, there was no public demand at that time due to the fact that the general public knew very little about laminated glass, and at $4.80 a square foot the cost to equip a body with laminated glass was prohibitive.

Q. Up to the spring of 1928 to what extent had General Motors Company used laminated glass in its cars?

A. Why, some laminated glass was used in custom built bodies by Fleetwood Body Corporation and occasional sets purchased for Cadillac and Buick jobs; only when specified by the customer.

Q. It was not standard equipment at all?

A. No.

Q. Can you tell what quantity of laminated glass was purchased by the Fisher Body Corporation from the Triplex Safety Glass Company of North America during the year 1927?

A. The Fleetwood Body Corporation purchased 230 square feet at $4.80 a square foot, and the Fisher Body [fol. 565] Corporation Division purchased 2084 square feet at the same price.

Q. In other words, the entire purchases of laminated glass by the Fisher Body Corporation from the Triplex Company during 1927, as I figure, were about 2300 square feet?

A. Correct.

Q. And for that you paid $4.80 a square foot?

A. Correct.

Q. What was the attitude of the officials of the Fisher Body Corporation in the spring of 1928 toward the adoption of laminated glass as standard equipment in Cadillac and LaSalle cars?

A. Some of the officials of our company felt that Cadillac would not realize in increased sales the extra cost of equipping bodies with laminated glass due to its being relatively unknown to the buying public; others felt that while there was no call for it, the Cadillac Motor Car Company was advertising safety in automobiling and if the product could be obtained at a price we could afford to pay, the Cadillac Motor Car Company should give this extra protection to its customers.

Q. What was the difficulty about adopting laminated glass by the Cadillac Company at that time—this question of price?

A. Yes.

Q. Now, did the Triplex Safety Glass Company, late in 1927 or early in 1928, quote the Fisher Body Company prices on the use of Triplex glass as standard equipment in Cadillac and LaSalle cars?

A. Yes.

Q. Did your company accept the offer?

A. No.

Q. Why?

[fol. 566] A. In the judgment of the officials of our company the sales advantage expected from the adoption of laminated glass was not worth the price asked by the Triplex Company.

Q. Did the Pittsburgh Plate Glass Company in the spring of 1928 quote the Fisher Body Company prices on the use of Duplate safety glass as standard equipment in Cadillac and LaSalle cars?

A. Yes.

Q. Will you please state to the Master the circumstances leading up to the arrangement, if any, that was made at that time for the use of Duplate by the Cadillac Motor Company?

A. No consideration was given to the general use of laminated glass in Cadillac and LaSalle bodies until Mr. Higgins of Pittsburgh Plate Glass Company, came to me and offered to supply our requirements of laminated glass for Cadillac and LaSalle production at a price of $1.75 per square foot plus an amount for necessary edge work. Although this price was below Pittsburgh's cost of production, Mr. Higgins felt that in no other way could laminated glass be put before the public so effectively as through its

adoption by the Cadillac Motor Car Company, and that the loss incurred by his company in selling the glass at this price would be considered as advertising expenditure.

Q. Mr. Fisher, will you state whether or not your company ever considered the Triplex Safety Glass Company as a source for the acquisition of laminated glass for the cars produced by your company?

A. Yes.

Q. And did you ever adopt the Triplex Company as your source of supply?

A. Yes; part of our supply.

Q. When was that?

[fol. 567] A. I think it was the last year that we built bodies in Fleetwood, Pennsylvania, and I think that was about 1929, if I remember correctly.

Q. Do you remember whether you bought any considerable amount of glass from them at that time?

A. I think they had all of Fleetwood's business, or the biggest portion of it.

Q. And after 1929 were they your source of supply for any of this business?

A. Yes, I think we bought some glass from them still in 1930.

Q. Do you remember to what extent?

A. No.

Q. Turning back to 1928, will you state whether or not you considered the Triplex Company as a source of supply for your safety glass requirements, if any, in that year?

A. Yes.

Q. Did you use them as your source of supply?

A. Yes, in 1928.

Q. To what extent?

A. I couldn't give you those figures.

Q. Do you remember the prices?

A. No.

Q. Now, what have you to say about this question of public demand for safety glass, say from 1928 on? Has there been a real public demand for this article, or has it been a question of the automobile makers in some of the cars such as Cadillac endeavoring to induce the trade to accept safety glass? Which has been the history of it?

A. I don't think there is any public demand for it.

Q. You don't think so?

A. No. I think in a good many cases it is used for selling advantage—sales.

[fol. 568] Q. And the use of safety glass, in so far as it has been used, as I understand you, has been an effort on the part of the manufacturers of the cars to get the people to use it?

A. Yes.

Q. Why is that? On the ground of protection of life and limb?

A. Just from the theory of fear. That is all.

Q. Take, for example, the Buick car. Has it ever had safety glass as standard equipment?

A. No.

Q. Take any car.

A. The Chevrolet has never had any laminated glass and they have had for one or two or three years the biggest production in this country.

Q. And even the Buick does not have any laminated glass even in the windshield?

A. No.

Cross-examination.

By Mr. O'Shea:

Q. Mr. Fisher, if a product were being sold at the rate of ten million square feet a year to the users of that product, would you still consider there was no public demand for it?

A. Yes.

Q. You would consider that there was no public demand in spite of the fact that it was being used at the rate of ten million square feet a year?

A. Yes.

Q. Did your company establish a laminated glass factory for the manufacture of laminated glass?

A. Yes.

Q. Wasn't it your thought that there was some outlet for that laminated glass when you established that factory?

[fol. 569] A. We thought there was an improvement in the construction.

Q. But the question was, Mr. Fisher, when you established your laminated glass factory didn't you think that there was then a public demand for the use of laminated glass?

A. A small demand, yes.

Q. When did you establish that factory?

A. I can't tell you that.

Q. Can you tell me the year—1928, 1929, 1930?

A. No.

Q. As I understand it, when Mr. Higgins came to you first with the proposal that your company establish laminated glass and quoted a figure of $1.50——

A. $1.75.

Q. Do you remember what year that was? For the purpose of refreshing your recollection, the Pittsburgh Plate Glass Company opened their laminated glass business in January, 1928.

A. They quoted that price in the spring of 1928.

Q. Were you then receiving quotations from the Triplex Safety Glass Company for laminated glass?

A. Yes.

Q. Do you remember what their quotations were?

A. No.

Q. If I were to say that the quotations were $2.55, would that surprise you?

A. It is my recollection it was either $2.25 or $2.55. I forget.

Q. Do you recall as to whether the $2.20 or $2.25 was for a contract to supply your entire requirements; whereas, if the contract was only for a part of the requirements, it would be $2.55? I mean by that question is that the recollection you have of the general state of prices from Triplex at that time?

[fol. 570] A. I don't recollect whether it was for part of our production or all.

Q. Do you recollect a conference with Mr. Hunt, the representative of the Triplex Company, in or about the year 1928 when he asked you why you had withdrawn an order, or stopped the forwarding of templates to the Triplex Company?

A. No, I don't.

Q. Well, is it the fact that when you did buy from the Duplate Corporation it was primarily on this question of lesser price?

A. Yes.

Q. Do you recall what your company, the Fleetwood Company, paid for such glass as it did purchase from Triplex Safety Glass Company?

A. The only record I have here they paid $4.80.

Q. Now, is it the fact that occasionally, even as far back as 1927, customers would ask for laminated glass?

A. Yes, sir.

Q. And those requests came through, I assume, the local agencies and then were remitted up to your factory?

A. No, they came through our divisions.

Q. Your so-called divisions—that is where the customer was in contact?

A. Yes, sir.

Q. So that there were some customers at least in 1927 who were asking for cars equipped with laminated glass?

A. Yes, sir.

Q. Now, at what point do you consider that a public demand is created? What I mean is how many customers would have to ask to have their cars equipped with laminated glass before you would consider that a real public demand was created?

[fol. 571] A. I would say about 60 per cent.

Q. Sixty per cent. of the purchasing public? Perhaps you can help us out somewhat. What would be considered as the number of cars sold, let us say in 1928?

A. I don't know how many cars offhand were sold.

Q. There were more than a million I guess sold in 1928, were there?

A. Yes, sir, there was.

Q. Of course, that million includes all the cheaper cars as well as the more expensive cars?

A. Yes, sir.

Q. I notice you have been reading from notes. Did you prepare those notes yourself, Mr. Fisher?

A. Yes, sir.

Q. From your records?

A. Yes, sir.

Q. They were not suggested to you by anyone?

A. No, sir, they were not.

Redirect examination.

By Mr. Smith:

Q. Mr. Fisher, would the difference in price of laminated glass such as would exist between $2.20 to $2.25 a square

foot and $1.75 a square foot, would that be a material difference to your company in making up its mind which glass to buy?

A. Very much.

Q. In the automobile industry what do the makers have to consider in this matter of putting expense on a car? Is that important?

A. Very important.

Q. And what is the effort of the trade without stinting the quality? What is your effort in the matter of price? Keep it low or keep it high?

A. Keep it low.

[fol. 572] Recross-examination.

By Mr. O'Shea:

Q. Have you in mind any accessory used in automobiles where the public demand amounts to as much as 60 per cent. of the number sold?

A. Bumpers.

Q. Any other one than that, than the bumpers?

A. What do you term accessory?

Q. Well, I guess, any part of a car. I would term perhaps laminated glass as an accessory; free wheeling as an accessory.

Mr. Smith: Would you include a self-starter?

Mr. O'Shea: Perhaps yes, a self-starter.

A. I don't think free wheeling is an accessory any more.

Q. It is standard equipment as distinguished from an accessory?

A. Laminated glass with us has always been an accessory.

Q. But free wheeling is not?

A. It never was until it was adopted universally on a car.

Q. Aren't there some cars that have now adopted laminated glass as standard equipment?

A. Yes, sir.

By Mr. Smith:

Q. What cars use laminated glass as standard equipment? You said there were some.

A. Lincoln cars.

Q. Any others?

A. There might be others but I wouldn't say positively.

Q. What about Cadillac?

[fol. 573] A. Of course, you understand Cadillac and LaSalle always have since the adoption of laminated glass.

By Mr. O'Shea:

Q. As standard equipment?

A. As standard equipment.

Q. Would you mind putting the year in?

A. I wouldn't say the exact time.

By Mr. Smith:

Q. Being ignorant in the automobile business, Mr. Fisher, as I understand it, the cars which now use laminated glass as standard equipment throughout the car—that is, not only the windshields but in the body lights—are Lincoln, Cadillac and LaSalle. Can you mention any others?

A. Well, there are a few more that have adopted it but I don't know anything about their product so I wouldn't answer it. Studebaker advertise it, but I wouldn't answer for them.

Q. Well, these cars that you know have adopted it as standard throughout, are those cars in the low price field or in the high price field?

A. From about $800 on up I would say.

Q. Well, the ones you have mentioned are the Lincoln and the Cadillac and LaSalle. Those aren't in the $800——

A. I would say Studebaker from $800 on up.

Q. Leaving Studebaker out, I suppose it is fair to say Lincoln, Cadillac and LaSalle are in the high-priced class as opposed to the low price class?

A. From two thousand up.

Q. And in the trade from two thousand up, is that considered a high priced car?

A. Yes, sir.

[fol. 574] J. KING HARNESS, a witness produced on behalf of the defendants, having been duly sworn, testified as follows:

Direct examination.

By Mr. Smith:

Q. Mr. Harness, where do you live?
A. Detroit.
Q. And how long have you lived in Detroit?
A. Sixteen years.
Q. Are you a member of the Bar?
A. Yes.
Q. And how long have you been admitted?
A. I think about twelve years.
Q. And what is the nature of your practice—what kind of practice? Is it common law practice or patent practice?
A. Patent practice.
Q. Entirely?
A. Entirely.
Q. I believe you are the senior partner in the firm of Harness, Dickie, Pierce & Hann with offices in this building?
A. Yes.
Q. I believe in addition to patents you handle trade-mark cases?
A. Yes.
Q. I suppose patents is the principal end of the business?
A. Patents and trade-marks. Of course, patents are the predominating part.
Q. Have you had considerable experience in your practice in considering and passing upon patents of various kinds?
A. Yes.
Q. And have you had occasion to negotiate the sale of licenses under patents?
[fol. 575] A. Yes, quite a few.
Q. Frequently?
A. Yes.

Mr. Smith: I propose to ask the opinion of this witness as to what is reasonable royalty. If you wish to examine him any further as to his qualifications before I put that question, you are at liberty to do so.

Mr. O'Shea: I will reserve all questions until cross-examination.

Q. Have you any relationship to the Chrysler Corporation—that is, the Chrysler Automobile Company?

A. That corporation is one of my clients.

Q. And are you engaged on their business continuously?

A. Yes.

Q. Do you handle the Chrysler patent affairs?

A. Yes.

Q. And in addition to that do you have your own private patent practice?

A. Yes.

Q. Did you ever handle any patent business for the Ford Motor Company?

A. Yes, I organized the patent department of the Ford Motor Company. I was in the employ of that company from 1916 until 1921.

Q. And while you were in the employ of the Ford Company during that period were you in contact with their patent business?

A. Yes. From the time I organized the patent department there I had charge of all their patent work, not only the obtaining of patents but the negotiating of licenses, defense of lawsuits.

[fol. 576] Q. Did you negotiate the matter of the giving and receiving of all patent licenses of the Ford Company during the time you were connected with the company?

A. Well, I wouldn't say during all the time I was connected with the company that I did so. I did for the latter part of the term of my employment there.

Q. How long—two or three years?

A. Yes.

Q. How long have you been employed by the Chrysler Company?

A. I began representing the Chrysler Corporation in 1921.

Q. Now, since 1921 will you state whether or not you have conducted all the negotiations for the granting or receiving of patent licenses by the Chrysler Corporation?

A. Yes. I might say there that in 1921 it was not the Chrysler Corporation. It was at that time the Maxwell Motor Corporation.

Q. Did it become the Chrysler Corporation later?

A. Yes, they changed the name to the Chrysler Corporation in 1925 I believe.

Q. There have been some companies merged that formed this corporation I presume?

A. No. The Maxwell and Chalmers Corporations were merged in 1921 to form the Maxwell Motor Corporation, and then they later produced the Chrysler car and the name of the corporation was changed to the Chrysler Corporation.

Q. Do you have an office at the plant of the Chrysler Corporation in this neighborhood?

A. Yes, I have an office there.

Q. Where is their plant?

A. On Oakland Avenue.

Q. Is that in the City of Detroit?

A. It is in the City of Highland Park, a suburb of Detroit.

[fol. 577] Q. That is one of the suburbs that is completely surrounded by Detroit, is it not?

A. That is right.

Q. I should have asked you, Mr. Harness, whether or not you have read the so-called Benedictus patent on laminated glass, United States Patent No. 1,182,739.

A. Yes, I have.

Q. Mr. Harness, what would have been a reasonable royalty on January 1, 1928, for a non-exclusive license under the Benedictus Patent on laminated glass, United States Patent No. 1,182,739, for the life of the patent, on the assumptions that:

1. The patent will expire on May 9, 1933.

2. The patent brought to the art what is known as laminated, or non-shatterable glass, which is peculiarly advantageous in the manufacture of automobile windshields and body lights because it is a glass which will crack but will not shatter and break into pieces, thereby reducing to a minimum the danger of personal injuries in automobiles due to flying glass.

3. No other process for the manufacture of non-shatterable glass is commercially available.

4. This laminated glass, properly made, has the same visibility, over an extended period, as ordinary plate and/or sheet glass.

5. The commercial development of this patent was begun by the assignee of the patent in 1926, and prior to January 1, 1928, approximately $250,000 was spent for the purpose of creating public interest in and demand for this non-shatterable glass by means of advertisement and other forms of publicity in well-chosen periodicals of national circulation and well-chosen daily newspapers.

[fol. 578] 6. In 1926, 1153 square feet of this patented glass were sold by the assignee of the patent; in 1927 the same company sold 50,000 square feet of laminated glass and persuaded the Chrysler Motor Company and the Hudson Motor Company to permit their respective organizations and the public to be circularized to the effect that laminated glass could be obtained as optional equipment for windshields at a price of $4.80 per square foot of laminated plate glass. The Chrysler organization was offered laminated sheet glass at $3.60 per square foot. Very little business was obtained in this manner from either company.

7. On October 17, 1927, a contract had been made between the assignee of the patent and the Ford Motor Company under which the Ford Motor Company agreed to install this laminated glass as standard equipment in windshields on its cars and to purchase up to one-half of its requirements for a four-year period beginning April 30, 1928, from the owner of the patent at the cost of production to the owner of the patent or to the Ford Company, at the option of the Ford Company, plus 20 cents for each windshield so purchased, and the Ford Company being given a license under the patent which continued for the life of the patent.

8. In 1928 the assignee of the patent would sell 161,564 square feet of laminated plate glass, 51,515 square feet of laminated sheet glass to others than the Ford Motor Company, 1,924,781 square feet of laminated sheet glass under its Ford contract, or a total footage of 2,137,860 square feet; in 1929 the assignee of the patent would sell 195,788 square feet of laminated plate glass, 181,041 square feet of laminated sheet glass to others than the Ford Motor Company, and 6,236,524 square feet of laminated sheet glass under its Ford contract, or a total footage of 6,616,353 [fol. 579] square feet; in the first five months of 1930 the

assignee of the patent would sell 57,372 square feet of laminated plate glass to others than the Ford Motor Company, 66,192 square feet of laminated sheet glass to others than the Ford Motor Company, 98,221 square feet of laminated plate glass and 1,890,818 square feet of laminated sheet glass under its Ford contract, or a total footage of 2,112,603 square feet; and that Duplate Corporation, as the recipient of the license the value of which is being sought by this question, would sell 1,100,000 square feet of laminated plate glass in 1928, 2,320,000 square feet in 1929, and 760,000 square feet in the first five months of 1930. The various amounts mentioned in this paragraph are approximate amounts.

9. While laminated glass was produced in commercial quantities beginning in the year 1926, machinery, equipment and technique had not been devised or developed to the point where laminated glass could be manufactured on a scale necessary to supply automobile companies desiring it as standard equipment on windshields, without losses through breakage or rejections due to defective product amounting to approximately 20 per cent. of the entire output from January 1, 1928, to June 1, 1930, in the experience of both the Ford Motor Company and Duplate Corporation, and that a constant process of trial and error, involving the constant replacement of machinery and equipment, reduced the said losses in the case of Duplate Corporation to approximately 11 per cent. for the first five months of 1930.

10. Duplate Corporation would purchase glass and pyralin (the constituent elements of laminated glass) at the market and sell approximately 4,000,000 square feet of laminated plate glass during the period January 1, 1928, to June 1, 1930, but would make those sales at a heavy loss, [fol. 580] due in part to the necessity of selling the product at a price low enough to induce automobile manufacturers to use it.

11. During the period from January 1, 1928, to June 1, 1930, there would be no widespread demand for laminated glass on the part of automobile purchasers, but such sales of laminated glass as would be made would be occasioned to a greater extent by the efforts of automobile manufacturers to force the purchasers of automobiles to take the

glass than by any desire of the purchasers to have it; and that it was almost impossible to induce automobile manufacturers to purchase laminated glass for standard equipment at the true cost of manufacture plus a fair manufacturing profit during this period, because it would increase the cost of the automobile without, in their opinion, returning a commensurate sales advantage.

12. A five- or seven-passenger automobile contains a glass area including windshield and body lights of approximately twenty to twenty-five square feet, depending upon the size and model of the car, approximately four square feet of which goes into the windshield, and that the sale price of glass to the manufacturer of windshields or body lights was about 40 cents a square foot for plate glass and 6 cents a square foot for sheet glass, and that laminated glass involves double the amount of glass necessary to make an ordinary windshield and approximately four square feet of pyralin, costing approximately 20 cents a square foot, making the cost of the materials entering into an average plate glass windshield rise from $1.60 to $4, without giving effect to the increased cost of manufacture.

13. During the period from January 1st, 1928, to June 1st, 1930, a selling price of laminated glass quoted by the [fol. 581] assignee of patent to manufacturers of automobiles for use as standard equipment for windshield and/or body lights would follow approximately the following trend:

During the period from January 1st, 1928, to July 1st, 1928, the following prices would be in effect:

"B"

	Up to 1,000 sq. ft. per day	Up to 2,000 sq ft. per day	Up to 5,000 sq. ft. per day	Up to 10,000 sq. ft. per day
W/Ss-Plate	$3.23	$3.16	$3.06	$2.79
Other Body Lts.—Plate	2.96	2.87	2.77	2.50
W/Ss-Sheet	1.87	1.79	1.70	1.41
Other Body Lts.—Sheet	1.80	1.72	1.62	1.34

During the period from July 1st, 1928, to June 1st, 1930, the following prices would be in effect:

	Up to 1,000 sq. ft. per day	Up to 2,000 sq ft. per day	Up to 5,000 sq. ft. per day	Up to 10,000 sq. ft. per day
W/Ss-Plate	$2.81	$2.74	$2.64	$2.37
Other Body Lts.—Plate	2.66	2.57	2.47	2.20
W/Ss-Sheet	1.87	1.79	1.70	1.41
Other Body Lts.—Sheet	1.80	1.72	1.62	1.34

The prices under both of the foregoing schedules were what the assignee of the patent attempted to get but it reduced these prices in several instances in order to obtain business.

15. The term "Assignee of the Patent" refers to Triplex Safety Glass Company of North America, plaintiff in this accounting.

Mr. O'Shea: Plaintiff objects to the question as the whole is not founded upon the evidence produced in this case, and [fol. 582] particularly objects to that section of Item 6 of the hypothetical question reading as follows: "Very little business was obtained in this manner from either company." That objection being based on the ground that there is evidence in the record to the effect that substantial business was obtained from each of those companies.

Plaintiff objects to Item 7 of the hypothetical question on the ground that this particular item of the hypothetical question does not properly state the terms of the Ford contract referred to in the item in that the term of the license agreement was not limited to the life of the Benedictus patent in suit, No. 1,182,739, but was limited to the life of any patent that was included in that agreement and the agreement includes all inventions, improvements, methods, mixtures and processes covered by any and all Letters Patent of the United States or Dominion of Canada now or at any time hereafter owned, controlled or in the possession of the Triplex Company; and in other respects Item 7 does not properly nor adequately set forth the terms of the said license agreement.

Plaintiff further objects to Item 8 of the hypothetical question for the reason that it is not founded upon the testimony heretofore adduced in the case and does not properly

state that testimony, but assumes a state of facts for the future which might or might not have existed and which could not possibly be in the mind of a person estimating what would be a reasonable royalty in 1928.

Plaintiff further objects to Item 9 of the hypothetical question on the ground that the assumptions in that item are not only not borne out by the testimony heretofore brought out in the record, but are specifically contrary to [fol. 583] such testimony already in the record.

Plaintiff objects to Item 10 of the hypothetical question on the ground that it assumes facts which are not within the testimony heretofore adduced in the case, but on the contrary, assumes facts which are directly contrary and opposed to such testimony.

Plaintiff objects to Item 11 of the hypothetical question on the ground that it assumes facts which are not brought out in the testimony; on the further ground that the facts assumed in Item 11 are contrary to such facts heretofore brought out in the testimony.

Plaintiff objects to Item 12 of the hypothetical question for the reason that it assumes that the price of ordinary plate glass used in the construction of automobiles is sold at 40 cents a square foot and that ordinary sheet glass, as distinguished from laminated glass or glass used for the production of laminated glass, is sold at a price of six cents a square foot, there being no testimony in the record of those facts. The question further assumes that the average cost of an ordinary plate glass windshield, as distinguished from a laminated glass windshield made of plate glass, is $1.60 and there is no testimony in the record with respect to that cost for an ordinary plate glass windshield.

Plaintiff objects to the last paragraph of Item 13 of the hypothetical question in that it states that the patent owner or assignee, as he is called in the hypothetical question, "reduced these prices in several instances in order to obtain business"; whereas, the testimony heretofore adduced in this case shows that the owner of the patent was forced [fol. 584] to reduce its prices by reason of the competitive prices of this defendant.

The Master: The objections are overruled for the present and the witness will answer the question, and his answers will be considered in the light of the plaintiff's objections.

(Exception noted to plaintiff.)

A. The statement of facts which existed previous to January 1, 1928, was such that a prospective licensee would be faced with a considerable gamble. The patent had only five more years to run; the license to be obtained was a non-exclusive one, so that licensee would have no assurance against competition involving the same process; the process was not fully developed and the prospective licensee would know that he had to spend a considerable amount of money in further development work; the proposed construction was of necessity considerably more expensive than the constructions which it was to replace, and there was no indication that motor car manufacturers would be willing to bear the additional expense in order to secure the advantages of shatter-proof glass as standard equipment in their automobiles. These considerations presented such an element of chance that I would expect a reasonable license arrangement to be predicated upon payment to the patentee of a percentage of the profits derived from the business rather than a royalty which would be paid irrespective of whether profits were made. In other words, the patentee should have been willing to have taken the same gamble as the licensee, so that if no profits were made, the licensee would not be additionally penalized by the obligation to pay royalties from a business which was being operated at a loss.

Assuming, however, that the licensee were willing to take the additional gamble of agreeing to pay a royalty irrespec- [fol. 585] tive of whether or not he made profits, I think the most logical basis for royalty payments would be the agreement which the patentee had with the Ford Motor Company. To say the least, considerable difficulty would be met in obtaining any higher percentage of royalty from any other motor car manufacturer than the Ford Motor Car Company had agreed to pay. In that agreement shatter-proof glass was to be furnished to the Ford Motor Company at cost, plus twenty cents on each windshield, which included four square feet of glass. This contemplated an overall profit of twenty cents for each four square feet of glass, and I do not think that it would be fair to assume that more than 10 per cent. of this profit should be considered as royalty. The remainder should be considered as manufacturing profit based upon the manufacturing investment, effort and chance. Upon this basis, two

cents of each twenty cents profit would be allocated to royalty, making a footage royalty of one-half cent per square foot.

Q. Mr. Harness, as I understand your testimony, for the reasons you have given, in your opinion the fair royalty would be one-half cent per square foot on the laminated glass.

A. Well, I would say it should not be more than that.

Q. Not more than one-half cent per square foot?

A. Everything considered, it might be reasonably and fairly said it ought to reasonably be less than that when you consider the Ford contract gave the Ford Company the right to purchase 50 per cent. of its requirements without royalty or without profit whatever to the patentee, and when you also consider that they had a free license after, I think, some time in 1932.

Q. As I understand it, when you said the Ford Company had the right to purchase one-half of its requirements free [fol. 586] of royalty, I think the word "purchase" was not the proper word. As I understand the contract, it gave the Ford Company the right to manufacture one-half its own requirements without royalty.

A. It is the same thing.

Q. So when you come to look at this twenty cents per windshield that the Ford was paying, that seems to have covered two things at least. Is that right?

A. Unquestionably it covered manufacturing profit as well as any royalty that might have been included for the patent.

Q. It included manufacturing profit and royalty to the Triplex Company on half the production, and it included any royalty that the Ford Company would otherwise have paid on its half of production? Is that right?

A. That is correct.

Q. So that from that aspect alone, instead of being twenty cents, it would have been ten cents, would it not?

A. You mean the overall profit?

Q. Yes. If you allow it to cover the Ford's production as well as its own production, you would divide it in two; instead of twenty cents, it would be ten cents, wouldn't it?

A. I think that would be a fair way to look at it.

Q. Supposing a manufacturer receives costs plus a cer-

tain fixed price for his product, what does that certain fixed price have to cover?

A. Well, it has to cover the cost of the material used as well as the cost of fabricating those materials into the finished article.

Q. In the question I put to you I am assuming that the manufacturer gets the cost of his raw materials and the cost of fabricating. Now, the twenty cents that he gets in addition, what does that cover?

[fol. 587] A. That would largely cover manufacturing profit.

Q. Well, now, in the manufacturing business will you state whether all years are profitable years?

A. There is no question but what many years are not profitable years.

Q. And does the manufacturer have to consider in taking his compensation both the profitable years and the unprofitable years?

A. He certainly does.

Q. Length of loss in unprofitable years?

A. Yes.

Q. What kind of year are we having now—this year 1932?

Mr. O'Shea: I think this is going far afield. I object to it on the ground it is irrelevant and immaterial.

Mr. Smith: I think it is fair enough.

The Master: I think it is going a little far but we might hear what the witness has to say about it.

Q. What kind of a year is this?

A. Well, I think most manufacturers have found this an extremely difficult year to make any profit.

Q. Now, on the basis of about four square feet of glass in each windshield, what would that make the reasonable royalty in your opinion per windshield?

A. Well, as I said before, I think not more than 10 per cent. of the overall profit should be considered as royalty, which would be two cents a windshield.

Cross-examination.

By Mr. O'Shea:

Q. Mr. Harness, you said you had read and understood the Benedictus Patent in suit, No. 1,182,739?

A. I have read it. I don't know that I understand it as [fol. 588] well as I might if I had been involved in trying it in law suit, but I think I understand generally what it covers.

Q. Will you state what you understand it covers with particular reference to Claim 12?

A. My understanding of that claim is that it covers a sheet of glass which was fabricated of two separate glass portions, between which was inserted a sheet of celluloid, which celluloid is in turn coated on its opposite sides with gelatin, substantially moisture free.

Q. Well, it covers any laminated glass, does it not, consisting of two sheets of glass with an interposed sheet of celluloid having gelatin on its opposite sides, which is substantially free from contained moisture?

A. Yes, I would say that is substantially it. I will say further I had to go on the assumption, in view of the way the question has been put to me, that this patent covered the only available method of making shatter-proof glass.

Q. In answering the hypothetical question have you taken into consideration the utility and advantages of this patent?

A. Yes, I think I have fairly.

Q. What do you consider the advantages of the patent?

A. Well, the fact that the glass affords the person using it with a considerable amount of safety and that it cannot be shattered so as to cut the person whom it is supposed to protect.

Q. In answering the hypothetical question did you take into consideration in that answer the opinion of the District Court of the United States as to the scope of this patent, its utility and advantages?

A. I don't know that I consciously did. I think I read that opinion some time ago and probably subconsciously carried part of its thought in my mind, although I didn't [fol. 589] consciously read the opinion before formulating my answer to this question.

Q. As I understand it then, you have not recently read the opinion of the District Court?

A. No, it has been some time.

Q. Did you ever read the opinion on this patent of the United States Court of Appeals for the Third Circuit?

A. Yes, I believe I read that some time ago.

Q. Was your mind in the same condition in respect to

that when you answered this question, namely, that you didn't have it consciously in mind?

A. Yes.

Q. Now, if you assumed, as stated by the District Court, that this was a pioneer patent entitled to a broad construction and bringing a new product to the art, would that change your conclusion with respect to what would be a reasonable royalty?

A. No; I was of necessity bound to consider it in that light because of Section 3 of the hypothetical question, which states that no other process for the manufacture of non-shatterable glass is commercially available. I have my personal doubts as to the truth of that, but I have considered that as though it were the fact.

Q. We must do that, I take it, in view of the decisions of the Court?

A. Yes.

Q. I assume, Mr. Harness, in your experience you have drawn a great many license agreements for your clients?

A. Quite a number.

Q. Can you mention offhand a license agreement in which your client paid as a royalty two cents for an article selling for $4.80?

A. Why, I haven't thought of it in that light. Whether I could think of any such thing or not I don't know. I [fol. 590] would say this generally, that when you consider what is the cost of an item it is difficult to say because the patentable portion of the item may represent but a small part of the component cost of the completed article. In attempting to answer this question I have not attempted to draw any parallels between specific things which I have negotiated licenses for either for or against the patent for the simple reason that I have always felt and still feel that it is impossible to draw exact parallels because one device may be of more importance to the industry than another. I may think it is of more importance and you or someone else may think it is of less importance. The cost of the thing may be computed by one person to represent a certain figure; whereas, by another person it may be computed to be an entirely different figure, depending entirely upon what things each individual figured into the cost. So that in answering this question, as I say, I haven't tried to draw

any direct parallels. I have answered it purely from the standpoint of my general experience, particularly in the automobile field in license contracts. Of necessity this matter of royalty is not a fixed science. No one can tell, and I certainly don't propose to tell that a royalty can be set arbitrarily at some certain figure and say that is right and everything else is wrong. You must live with this thing and sort of get the feel of it to tell in general about what you would expect to pay for a particular thing and what you would expect your clients to be willing to pay.

Q. In my question I made an error. I should have asked you whether in your experience you have drawn any licenses or advised the making of any licenses as low as two cents for an article costing $19.20 instead of $4.80. I assume your answer would be the same?

A. Yes. I will further say this, that in the case of the automobile particularly, the higher price that you put on [fol. 591] the finished product—in other words, the higher overall cost of the automobile that you are going to make, the lower the royalty you are going to be able to obtain.

Q. I gather from your last answer that your conclusion is that in fixing the royalty under the conditions that you have in mind it is a question of negotiations between the owner of the patent and the prospective licensee; that the owner tries to get as much as he can and the licensee tries to give him as little as he can?

A. That is always true.

Q. That is the purport of your last answer?

A. Yes.

Q. Hasn't it been within the purview of your experience that a higher rate of royalty than two cents on an article selling in the market for $19.20 has been paid by some licensees?

A. There is no question about that. Certainly higher royalties have been paid.

Q. And, of course, when you are negotiating for a license on a pioneer patent as a rule you expect to pay more for a license than on a mere improvement? Is that not a fact?

A. Generally the owner of a pioneer patent is able to get a higher royalty than one who has a patent of less scope, although the question of what is a pioneer patent is always open to dispute.

Q. Until after a court has decided?

A. Even then. A court may hold a patent is of pioneer scope in a certain sense. For instance, this patent here we know is not a pioneer patent in the sense of providing windshield or lights for an automobile. The interpretation which I imagine you and the courts have placed on this patent is that it is a pioneer patent in respect to laminated glass. In other words, a particular kind of glass.

[fol. 592] Q. That is my interpretation, and as I read this decision that is the Court's interpretation and what it meant by declaring it to be a pioneer patent.

A. Yes.

Q. Now, in the hypothetical question you have assumed that the process was not fully developed, as stated in Item 9 of the hypothetical question?

A. That section of the question largely influenced the first portion of my answer when I said I thought the chances involved in the manufacture of this glass were such that the patentee should have been willing to have accepted from his prospective licensee a portion of the profits which would have been derived from the business of the licensee.

Q. And, of course, that section was also included in your answer that a half of a cent was a reasonable royalty?

A. No, I don't think that section was included in that answer.

Q. Even if the process were fully developed, you would still adhere to your conclusions that a reasonable royalty would be one-half cent per square foot?

A. Not more than one-half cent.

Q. Now, of course, you stated in answer to the hypothetical question that your conclusion was also based on your feeling that a patentee ought to take a percentage of the profits. Am I correct in that interpretation of your answer?

A. Well, I said under the circumstances which existed here it predicated the strong possibility that the licensee was engaging upon a business which might involve losses and not profits; that the patentee should have been willing to gamble with the prospective licensee.

Q. On that theory, of course, if the licensee kept his prices up, why the owner of the patent would get a greater royalty because the profits would be greater?

[fol. 593] A. He might or he might not. If he kept his prices up, he might not get nearly as much business and might make less profit.

Q. I mean per unit his rate of royalty would be higher.

A. If he got the same volume of business, obviously he would.

Q. And, of course, if you base your royalty on the percentage of the profits, the patent owner then is always in the power of the licensee to the extent at least that the licensee can always reduce the price and thereby reduce the royalty rate?

A. Quite true. Any such reduction of course would be at his own risk.

Q. And in spite of that you still would advise a client that he ought to base his royalty on profits?

A. Yes, that is done quite frequently.

Q. If you were advising a patent owner, you would tell him that he ought to base his royalty on the profits obtained by the licensee rather than on a percentage of the selling price?

A. I wouldn't always do that. And, of course, if I were representing the patentee, I would try to obtain for the patentee the best possible terms I could, and if I could insure him an income under his patent, I certainly would attempt to do so. On the other hand, with the circumstances which existed here, I think a fairer arrangement to both parties would have been a profit-sharing arrangement.

Q. And you would still be of that same opinion even if the licensee at the time he was making the license agreement declared his willingness to go out and sell this article without any profit?

A. Why, no. If he declared his willingness to go out and sell it without any profit, I certainly would not advise the patentee to take a portion of something which was nothing.

[fol. 594] Q. I think it in view of your last answer if you were advising a patent owner and you arrived at the conclusion that a fair basis of royalty would be a percentage of the profits, you would also advise him to put in a clause in the license agreement that the licensee might not sell at less than a certain price, would you not?

A. I would attempt to secure some such statement in the license agreement, but I would hardly expect to be able to be successful in having it accepted by the licensee.

Q. Is that an unusual provision for license agreements in your experience?

A. Yes. Usually the patentee considers that the licensee is not going to intentionally lose money and his intention in engaging in the business is to make money. If he can make money, then the patentee shares in the profits which the licensee is able to make. If conditions are such that he cannot make money, then neither of them have any profit.

Q. Well, we have a case here where we are assuming that the licensee says, "I don't intend to make any money."

A. I drew no such assumption from the question.

Q. I am asking you now to assume such a situation at the time when you are advising the patent owner to make a license agreement based on profits.

Mr. Smith: Objected to as incompetent, irrelevant and not cross-examination and not warranted by anything in the case. I know of no evidence that there was any intention never to make a profit with this patent.

Mr. O'Shea: I think it is a legitimate question on cross-examination.

Mr. Smith: I submit this question is not a fair interpretation of the testimony of Mr. Higgins or anybody else, and I therefore object.

[fol. 595] The Master: I will sustain the objection.

(Exception noted to plaintiff.)

Q. Mr. Harness, your answer to the hypothetical question is based upon an assumption of a non-exclusive license. Would your conclusion be changed if it were an exclusive license?

A. Yes, of necessity it would.

Q. And what do you think would be a reasonable royalty for this patent for an exclusive license?

A. I don't feel that I have made a sufficient study of the matter to warrant my answering that. A lot of things would have to be considered in connection with an exclusive license. There is no question but what an exclusive license always is worth more to the licensee than a non-exclusive license. How much more depends upon a multitude of circumstances.

Q. Mr. Harness, you said you were attorney for the Ford Motor Company?

A. I am not now; I was.

Q. Were you attorney for the Ford Motor Company on October 17, 1927?

A. No.

Q. Then I assume you are not the attorney who assisted in the preparation of this Triplex-Ford contract?

A. No, I had nothing to do with that.

Q. Do you consider that it was a substantial advantage to the patentee under this Ford contract that the contract obligated the Ford Company to advertise Triplex product?

A. Undoubtedly it was.

Q. Don't you think that was some consideration over and above the twenty cents payable for half the product?

A. I would reasonably expect that to add something to it. It is always to the advantage of any patentee to have a [fol. 596] substantial manufacturer adopt his patented device and advertise it. On the other hand, it is a thing which I don't think any other motor car manufacturer would pay any additional price for. In other words, if another motor car manufacturer wanted a license under this patent, the mere fact the Ford Company had agreed to use the glass and advertise it would not influence them in being willing to pay any more than Ford would pay.

Q. No, but that element in the Ford contract was a substantial consideration over and above the twenty cents that was paid?

A. Obviously, any use and advertisement which anyone may make of a patented product is of value to the patentee.

LLOYD BLACKMORE, a witness produced on behalf of the defendants, having been duly sworn, testified as follows:

Direct examination.

By Mr. Smith:

Q. Mr. Blackmore, have you been present during the testimony of Mr. Harness which has just been terminated?

A. Yes.

Q. And have you heard read to him the hypothetical question?

A. Yes.

Q. And have you before you a copy of that hypothetical question?

A. Yes.

Q. And have you examined that question before you came here to testify?

A. Yes.

[fol. 597] Q. Now, before I ask you to give your answer I would like to ask you this, Mr. Blackmore. Where do you live?

A. Highland Park.

Q. That is this same municipality that Mr. Harness lives in?

A. Yes.

Q. And how long have you lived there?

A. Eleven years.

Q. Are you a member of the Bar?

A. No. I am a registered patent attorney.

Q. And how long have you been a patent attorney?

A. Since 1909.

Q. Have you had considerable experience in that profession?

A. Previous to that I was a member of a firm of attorneys in Canada and had been since 1904, and have been practicing the profession of patent attorney from that day to this.

Q. You mean continuously since 1909 to this time?

A. Yes, sir.

Q. And have you had considerable practice?

A. I had my own office from 1909 to 1914 in Ottawa, Canada. I came here and went into the patent department of the Burroughs Adding Machine Company; was there about less than a year or a year; from there went to the Packard Motor Car Company's patent department; was there for a year and a half, and then went to the Cadillac Motor Car Company; was there about a year and then organized the General Motors patent department in 1917.

Q. Is that the patent department of the well-known automobile concern called the General Motors Corporation?

A. Yes, sir.

Q. And have you had charge of that patent department since 1917?

[fol. 598] A. I have had charge of the department up until four years ago and then we came under a director of both legal and patent sections.

Q. At any rate, you have been in close touch with the patent department of the General Motors Corporation since 1917?

A. Yes, sir.

Q. And have you had experience with the granting and obtaining of patent licenses by that corporation during that period?

A. I have negotiated and prepared the majority of their licenses in this office. That is, the negotiating of it.

Q. You have not only drafted the papers but been connected with the negotiations for the licenses? Is that right?

A. Always.

Q. And have there been many cases of such negotiations for licenses which you have been connected with for this corporation?

A. Well, it varies. Sometimes you will have—I have had three this month. I would estimate the average would run over ten, however, in the year.

Q. Now, I asked you before whether you had heard this hypothetical question which has been put to Mr. Harness and whether you had a written copy of it before you and whether you have examined it before you were called today. Will you please answer the question, Mr. Blackmore?

Mr. O'Shea: Plaintiff objects to the question as the whole is not founded upon the evidence produced in this case, and particularly objects to that section of Item 6 of the hypothetical question reading as follows: "Very little business was obtained in this manner from either company." That objection being based on the ground that there is evidence [fol. 599] in the record to the effect that substantial business was obtained from each of those companies.

Plaintiff objects to Item 7 of the hypothetical question on the ground that this particular item of the hypothetical question does not properly state the terms of the Ford contract referred to in the item in that the term of the license agreement was not limited to the life of the Benedictus patent in suit, No. 1,182,739, but was limited to the life of any patent that was included in that agreement and the agreement includes all inventions, improvements, methods, mixtures and processes covered by any and all Letters Patent of the United States or Dominion of Canada now or at any time hereafter owned, controlled or in the possession of the Triplex Company; and in other respects

Item 7 does not properly nor adequately set forth the terms of the said license agreement.

Plaintiff further objects to Item 8 of the hypothetical question for the reason that it is not founded upon the testimony heretofore adduced in the case and does not properly state that testimony, but assumes a state of facts for the future which might or might not have existed and which could not possibly be in the mind of a person estimating what would be a reasonable royalty in 1928.

Plaintiff further objects to Item 9 of the hypothetical question on the ground that the assumptions in that item are not only not borne out by the testimony heretofore brought out in the record, but are specifically contrary to such testimony already in the record.

Plaintiff objects to Item 10 of the hypothetical question on the ground that it assumes facts which are not within the testimony heretofore adduced in the case, but on the contrary assumes facts which are directly contrary and op-
[fol. 600] posed to such testimony.

Plaintiff objects to Item 11 of the hypothetical question on the ground that it assumes facts which are not brought out in the testimony; on the further ground that the facts assumed in Item 11 are contrary to such facts heretofore brought out in the testimony.

Plaintiff objects to Item 12 of the hypothetical question for the reason that it assumes that the price of ordinary plate glass used in the construction of automobiles is sold at 40 cents a square foot and that ordinary sheet glass, as distinguished from laminated glass or glass used for the production of laminated glass, is sold at a price of six cents a square foot, there being no testimony in the record of those facts. The question further assumes that the average cost of an ordinary plate glass windshield, as distinguished from a laminated glass windshield made of plate glass, is $1.60 and there is no testimony in the record with respect to that cost for an ordinary plate glass windshield.

Plaintiff objects to the last paragraph of Item 13 of the hypothetical question in that it states that the patent owner or assignee, as he is called in the hypothetical question, "reduced these prices in several instances in order to obtain business"; whereas, the testimony heretofore adduced in this case shows that the owner of the patent was forced

to reduce its prices by reason of the competitive prices of this defendant.

The Master: The objections are overruled for the present, and the witness will answer the question, and his answers will be considered in the light of the plaintiff's objections.

(Exception noted to plaintiff.)

[fol. 601] A. In answering the question I have weighed the fact that it was a non-exclusive license; that the glass cost more, and that development work, at least in the nature of production equipment for increased production, would be necessary to have worked out more than it had been; that it was not widely known or sold, at least to the public, and those things very much lowered or tended to lower the value I would place upon the patent. On the other hand, it had possible safety advantages that there was a chance might be found of interest to the public and might in some measure help with the sales of cars. I also realized that the patent only had five years to run. Those two things gave me reason for giving a little more royalty or increasing the figure a little more than I otherwise would. In asking the question, although it is not definitely stated, it says royalty and really your question means royalty on per square foot of glass, I take it, but in any estimating that I could do it would of necessity be based upon per windshield because we think only in terms of automobiles and cars. I do not know nor profess to know anything of the possible value of this glass for goggles or anything of that kind. The glass that you refer to in the question I take it to be automobile windshield glass, and then coming to how much per square foot, it is an arbitrary question always. It is a matter largely of horse-trading, in negotiating a license. It depends upon how much it is wanted, and very often more on wanting it due to meeting competition or to have something that will compete with a competitor than it is with the idea of simply putting on some new device. We have plenty of instances—in fact, this patent had nearly outlived its life before it was taken up. It is something that has been a moot question by eminent counsel and experts from all over the country as to a reasonable royalty for the value of a patent. For tax purposes, for [fol. 602] instance. And in carrying the matter in connec-

tion with tax purposes to the highest government tribunals it was there decided again it was more or less an arbitrary matter of making a price. In this particular instance one knows perfectly well that with the increased cost of the glass a royalty must be the very lowest amount that will be accepted.

My decision was made with consideration being given to the twenty-cent item that was taken as the profit in connection with the Ford agreement and the fact that Ford had the right to make or purchase one-half his quantity, which actually brought the twenty cents down to ten cents. The ten cents then, even though it was all a profit on the total production, was a much, much lower profit than one would ever take or think of taking on an article costing the price that this laminated glass windshield cost, bearing out to my mind the same policy and principle that in quoting or arranging or arriving at a royalty on something that adds to the cost of an alternative construction or article, then the royalty always is low. If the production was to be as large as the figures given, that would also lower the royalty. If it was something that was built in a Cadillac engine, it might be much higher than it would be if it were something built into a Chevrolet engine, but in the matter of glass, glass is glass. In other words, it is a base article. We don't pay any more for a given quantity of steel that enters into a Cadillac engine than we pay for that same steel if it goes into Chevrolet.

In coming to Ford or Chevrolet production we have royalties that range from—in quantity production I mean—speaking of Chevrolet, we have royalties that range from a tenth of a cent per car, which sounds quite ridiculously low, and more often around one or two cents up to maybe seven cents. It takes a higher priced automobile to carry [fol. 603] anything more. Further, in respect to such royalties, if a high price, in excess of we will say two cents, is to be paid, it is generally a case where it was something where we can change and avoid the royalty if we wish. In negotiating a royalty agreement on this glass, and taking it that that was the only commercial process available at the time, I would argue strongly for a lower royalty because if we put that out and educate the public to its use, we then cannot back up on it; so I would expect that would continue and we would have to continue with it. We

couldn't retract our advertising, afford to look that foolish in the eyes of the buying public. On the other hand, as I repeated, it was only five years for the patent to run. The arbitrary figure then in my opinion, without knowing Mr. Harness's thoughts in the matter, came to I would say two cents at the most for a windshield and that would be lowered if we put it around the car, meaning that if we paid two cents for a windshield, we would feature the windshield as being the part if broken the safety features of the glass would be much more important than it would if a side light or window is broken, which is much less liable to occur unless it is a total wreck. We would get the advertising from the front windshield more in proportion than we would if we paid the extra money and placed it all around the car. If it went all around the car, I would say at the most I would double it—four cents. I would try and get it for three cents, which would mean the whole car for three cents. I could have under those circumstances no regard for the price of the article, a[illegible]n't but say that those are the prices and that is what is a range of prices that is being paid regularly, having been built largely on the experience of what was found to be satisfactory to persons having patents that went into a product having a production of a present-day automobile, especially in the Chevrolet line. Time was when royalties went higher, say twenty-five cents for [fol. 604] a group of controlling patents such as a transmission or a rear axle where the differential was new in the mechanically driven automobile, but those figures—the production was found to be so great that they were recognized as too much and as the production went up rebates were made. I would therefore state that two cents, and if a person wanted it, it would be their business if they choose to pay three or five or even up to seven for a Buick class car, but when it comes into the Chevrolet production or the Ford production, I would say that two cents is the limit.

Q. Now, as I understand it, you say two cents would be the limit for the windshield?

A. Yes, sir.

Q. And assuming that the windshield comprised about four square feet of laminated glass, that would make your outside royalty one-half cent a square foot. Is that your testimony?

A. Yes, sir.

Q. But if you were applying that royalty not only to the windshield but to all the glass in the car, I understand you to say the royalty should be less than one-half cent per square foot when applied to all the glass.

A. I would say so.

Q. Now, Mr. Blackmore, you must understand in your testimony that this glass may be used not only for windshields but also for the other lights in the car. Did you so understand?

A. Yes, sir.

Q. And you are testifying considering that fact?

A. I am.

Cross-examination.

By Mr. O'Shea:

Q. Well, as I understand your testimony, Mr. Blackmore, it is your opinion that if you are granting a license [fol. 605] to a licensee whom you believe is in all possibility going to have extremely large production, then the royalty would be low?

A. Yes.

Q. Would you consider the Ford Company a company whom you would anticipate would have a large production, particularly if you were giving the matter consideration in 1927?

A. Yes.

Q. Conversely, if you were dealing with a manufacturer who would have relatively low production, you would increase that royalty proportionately? Is that correct?

A. Only because, and understand me, I speak of lower production because it always comes into a higher class car, which enables you to pay more.

Q. That is the reason why the manufacturer would have the lower production, is it not, because his price is higher?

A. That is more correctly put. It is not the mere low production because that in itself is wrong, and we not only consider in fixing a royalty the matter of production but we also consider the matter of price. I explained further that in this matter of glass it was rather unfortunate that it had to take a base price, and in getting to the Ford production you wouldn't say because this piece of glass which

you are buying from me—we would have to pay you many times more because it is going into a Chevrolet car.

Q. Why not, if your theory that a low production and high price ought to result in a high royalty is correct?

A. I mentioned that a Cadillac motor costs many times more than a Chevrolet motor would cost. That is not true of the glass.

Q. It is true to the extent that in the large production on the low price car they were using sheet glass; whereas, in [fol. 606] the high price car they had to use a better quality of glass, namely, the plate glass which costs more.

A. Yes, you could make a difference between the two.

Q. There would be a differentiation in your estimation?

A. Yes, if the higher priced plate glass was used in the Cadillac and the sheet glass was used in the Ford or Chevrolet, why you could add more to the Cadillac in the way of royalty. And in that respect I will go further: you could add anything that the traffic, as we say, would bear. It is entirely a matter of horse trading and negotiation. If the price put on it is too much, why it simply isn't taken. Usually, however, it will run where if an article was two cents for Chevrolet, it would be ten cents, maybe fifteen cents for Cadillac; a range in between there for the other cars.

Q. Giving your conclusion of two cents for a windshield on a production such as Ford's production, you realize that that amounts to about one-tenth of one per cent. of the patent owner's selling price?

A. No, sir.

Q. You think it is more than one-tenth of one per cent. of the patent owner's selling price?

A. That did not enter into my calculations.

Q. You didn't give any consideration as to percentages?

A. No, I didn't.

Q. If you were advising a patent owner in a situation where his patent only had five years to run, wouldn't you expect him and advise him to try to get a higher percentage of royalty because of the short time his patent had to run?

A. You are on the horns of a dilemma in such a situation. If you ask too much royalty, people are liable to wait for [fol. 607] the little time the patent has to run and leave it free for them to use without payment of royalty. So although a man is more likely to get a little more royalty because the person taking the license will know they are

going to be free of it before, we will say, five years in this case, you wouldn't attempt to crowd it too much or you would spoil it.

Q. Now, as I understand, you base your conclusion on the fact that this laminated glass was not widely known or sold to the public. Am I correct in that remembrance of your testimony?

A. Not that I based my opinion on that, but that that was one item that colored my decision in that it is a difficult thing to start in, as we say, and educate the public. If the thing was a thing that had been received by the public, it would have been different, and after it is received it is different. There were two things. One thing about the glass was that we didn't want to mention the thought of broken glass and the hazards of broken glass, and it would take careful handling to talk about glass being broken and still make the person want to buy this shatter-proof glass. It is better not to have the thought there at all.

Q. Do I understand from your last answer that it is your thought that the attitude of the big manufacturers was that they didn't want to push this for fear it might hurt their sales of cars with non-shatterable glass?

A. No. The trouble was to advertise it, we will say, or get it before the public in the right way without probably reducing your sales because of the thought of broken glass being anywhere.

Q. Well, of course, your advertising now would include the fact that you couldn't be hurt by this non-shatterable glass, and of course that would carry the——

[fol. 608] A. That would be the advertising matter. On the other hand, it was a case of proving it. I know it took me a long time before I felt I would be safe behind shatter-proof glass.

Q. In other words, your thought is that the manufacturer might be afraid that the public would become conscious of the danger from shattering glass?

A. Yes.

Q. Now, on this question of this glass being widely known, I direct your attention to the fifth item where it is stated that the patent owner here spent approximately $250,000 for the purpose of creating a public interest. Wouldn't you think some public interest should have been created after the expenditure of such an amount as that?

A. Some; but that is a very small amount in the kind of advertising—educational work that is necessary to be done with the public today.

Q. Mr. Fisher has testified that even back in 1927 individual owners of cars, prospective purchasers of cars, were asking that their cars to be equipped with non-shatterable glass. Wouldn't you think that was some indication of a demand on the part of the public for this kind of glass?

A. Some demand but not necessarily a demand, meaning by that that there are two things. The public will always take anything that is put on the car if it doesn't cost them any more; if they think they are getting it for nothing in other words. You can hang anything and everything on and they will be glad. And also there are always a number of people who will buy what you know as a custom built car and will buy odd articles or odd accessories to put on their car; while the ordinary person much prefers to carry along on the standard equipment.

Q. Wouldn't you consider that there was a public demand for an article where the manufacturers of that article were [fol. 609] disposing of a total of two million square feet of it in a year?

A. On the part of whom? You said a demand.

Q. On the part of the public.

A. Not necessarily. If one manufacturer chooses to put that in his automobile and that doesn't double or treble his sales, I don't see an indication of a demand on the part of the public.

Q. Well, is it any indication that the public does not want it?

A. No, not at all.

Q. Now, you are quite familiar with the arrangements internally of the General Motors Corporation, as I understand from your direct testimony?

A. In what connection?

Q. Patent matters and business matters.

A. Yes.

Q. Are you familiar with the fact that the General Motors organization signed a contract with the Fisher Body Company to pay them for their bodies cost plus 17½ per cent.?

Mr. Smith: Objected to as incompetent, irrelevant and not proper cross-examination.

The Master: What is your purpose, Mr. O'Shea?

Mr. O'Shea: This gentleman testified he was familiar with internal facts of the General Motors Corporation and qualified himself primarily on General Motors.

Mr. Smith: That is not a patent question.

The Witness: No. That would be entirely a sales matter.

The Master: We will hear the witness's answer and determine later.

(Exception noted to defendants.)

[fol. 610] The Witness: I meant that as my answer.

Q. You mean no, you are not familiar?

A. I am not familiar.

Q. Are you familiar with the suit of the General Motors Company under the Munger demountable rim patent?

A. No, sir.

Q. You don't know what the General Motors had to pay as a reasonable royalty under that patent?

A. That was before my time.

Q. Have you any specific contracts for royalty in mind where the patent owner received a percentage of the selling price of the article?

A. No, sir.

Q. You never drew such a contract as that?

A. No, sir.

Q. They were always based on the profits?

A. No, they were based on the article. So much per car as a rule. When I say that I wouldn't say there wasn't one odd contract not drawn on those lines.

Q. But you never drew a license agreement for the General Motors where the royalty was based on selling price?

A. No, sir.

Q. And you draw on an average of ten a year?

A. Yes, sir.

Q. Are all of the General Motors contracts drawn by you or only such as are negotiated here in Detroit?

A. At one time they were all drawn by me; at least all that were negotiated here in Detroit. Now they are drawn by myself and also others—Mr. Spencer and on odd occasions maybe someone else on our staff.

Q. Would your conclusion as to reasonable royalty under this patent be changed if the hypothetical question had not [fol. 611] stated that this process was not fully developed?

A. No. That didn't influence me nor did I give it much concern because always with such matters when it comes to big production we have got to regularly provide equipment that is different from equipment that someone may be using on small production elsewhere.

Q. Mr. Blackmore, I don't know whether you were asked this question. Did you read and do you understand the Benedictus patent in suit, No. 1,182,739?

A. Yes, sir.

Q. Did you read Judge Schoonmaker's decision?

A. No, sir.

Q. Have you read the decision of the Circuit Court of Appeals of the Third Circuit on that patent?

A. No, sir.

Q. So that you gave those opinions, and particularly the scope and advantages and utility of this patent, no consideration?

A. Yes, I took this question and took it as it stated in the question, and that patent and that claim in particular was shown to me, and that was the scope of the protection and further, not only that that was the scope of the protection, but that there was no other alternative construction that was available.

Q. In your answer to the hypothetical question did you have in mind basing it on your experience with licensing of articles of the General Motors Company where they were making it themselves?

A. Yes.

Q. In the conclusion that you arrived at in answer to the hypothetical question, did you take into consideration that the patent owner in this case was directly in the business and that the royalty which you are testifying about was to be paid by a competitor of the patent owner?

[fol. 612] A. No, sir.

Q. You did not take that into consideration?

A. No, sir.

Q. Do you know what royalty the General Motors Company paid on the Lovejoy Shock Absorber patent?

A. I have seen that license. I was the man who first contacted with Mr. Lovejoy. I know it to be very, very low. However, that matter was finally consummated at our Dayton office. I can't remember now when you ask me to remember. We have a long list of those figures.

Q. I asked you did you remember what the royalty was that was paid under that patent.

A. No.

Q. Now, do I understand you to say that it is your opinion that a reasonable royalty here would be at the rate of four cents a car for a complete equipment of this non-shatterable glass?

A. I said two cents a windshield and I said four cents a car maybe five, as I recall it.

Q. And if there were a million cars produced in the year, that would amount to $50,000?

A. Yes, sir.

Q. And you would consider——

A. That is a non-exclusive license.

Q. That is a non-exclusive license, but all of the licensees would produce only a million cars a year is my assumption.

A. I am talking about what we would be paying him if we took a license.

Q. Let us assume that they would have to make the same——

A. If Chevrolet took a license.

Q. —the same royalty on other cars, too—all other manufacturers' cars.

A. Yes.

[fol. 613] Q. And the production in a year of all of them amounted to a million cars.

A. But it is more than that.

Q. I am assuming if it were. It may be more than that, but I am assuming the total production was a million. That would be $50,000 for a million cars that he would receive?

A. Yes, sir.

Q. And you would think that would be a proper compensation to a patent owner who had already gone out and expended more than a quarter of a million dollars to create the demand?

A. Not at all.

Q. You think it would not be a reasonable royalty?

A. It may or may not be. I would think it was a reasonable amount for us to pay him on only Chevrolet production, which is the figure you quoted.

Q. On the higher price cars you think that ought to go up?

A. If they use the better quality of glass, I would consider it unfortunate for the inventor that he couldn't tack

onto the higher priced car, a proper, proportionately higher, amount.

Redirect examination.

By Mr. Smith:

Q. When you speak of two cents for the windshield and four or five cents for the car, am I right in assuming the four or five cents applied to a case where not only the windshields but all the body lights were of the glass?

A. Yes, all the body lights.

Q. In this seventh division of the hypothetical question reference is made to this Ford contract. Now, supposing a manufacturer of laminated glass was to be paid all his costs, total costs, and in addition twenty cents a windshield, [fol. 614] could or could not he count that whole twenty cents as being royalty?

A. Well, obviously not.

Q. Why not?

A. Well, where royalty is paid the man receiving it as a rule, and at least in full respect to what he receives the royalty on—he has no investment at stake nor is he taking any chances on the trend of the market or obsolescence of the article or some unforeseen competitive article coming into the field. Therefore, twenty cents would be very largely profit.

Q. Is it necessary or is it not necessary for a manufacturer to have good profits in good years to offset the lean years in business?

A. That of course is what has set up what we all know as the well known reserves.

Q. Now, do you consider that your testimony fixing the royalty at half a cent a foot or two cents per windshield is at all in conflict with this twenty cent agreement in the Ford contract referred to in paragraph 7 of the question?

Mr. O'Shea: Objected to as calling for a conclusion. The fact speaks for itself.

The Master: Objection overruled. Exception noted.

A. No, not at all.

(Adjournment taken until 11 A. M., Thursday, April 14, 1932, at the offices of the Chrysler Motors Corporation.)

[fol. 615] Thursday, April 14, 1932.

Met pursuant to adjournment.

Counsel present as before.

A. C. DOWNEY, a witness produced on behalf of the defendants, having been duly sworn, testified as follows:

Direct examination.

By Mr. Smith:

Q. Colonel Downey, where do you live?

A. Detroit; 950 Atkinson Avenue.

Q. About how long have you lived in Detroit?

A. Since February 1, 1921.

Q. Have you any connection with the Chrysler Motors Corporation, whatever the proper name of the Chrysler Company is?

A. Yes, sir. I am president of the Fargo Corporation, which is one subsidiary, and vice-president of the Dodge Corporation, another subsidiary.

Q. This Fargo Motor Corporation of which you are president, what kind of a company is that? Is it a manufacturing or a selling company?

A. That is a selling organization. We have charge of selling Chrysler cars, Dodge cars, De Soto cars, Plymouth cars, Dodge trucks, Fargo Motor Coaches to all national fleet accounts and to all users of twenty-five or more vehicles in the United States.

Q. When you say "national fleet accounts" you mean by that people who buy or use fleets of automobiles?

A. Yes, sir; fleets of automobiles, such as United States Steel, National Biscuit, and people of that kind.

[fol. 616] Q. And this Fargo Motor Corporation acts in that capacity with respect to the entire Chrysler line of cars, does it?

A. Yes, sir.

Q. Now, you are also vice-president of the Dodge Brothers Corporation. Are you anything else besides vice-president?

A. Assistant general manager.

Q. That is the Dodge Brothers Corporation?

A. Yes, sir.

Q. What kind of a company is that?

A. That is an operating company producing Dodge Six's, Dodge Eights, Dodge taxicabs, Dodge trucks; also miscellaneous parts for other Chrysler Motors vehicles.

Q. Colonel Downey, can you give us the names of the three large automobile companies in the United States?

A. General Motors, Ford, Chrysler are the three largest.

Q. How long have you been president of the Fargo Motor Corporation?

A. About one year.

Q. And how long have you been connected with the Dodge Brothers Corporation as either vice-president or assistant general manager?

A. Two years.

Q. Were you ever at any time connected with the purchasing department of the Chrysler Motors Corporation?

A. I was director of purchases from the beginning of the Chrysler Corporation until two years ago.

Q. About when was the beginning of the Chrysler Corporation?

A. About 1924 was the legal beginning of the Chrysler Corporation. Mr. Chrysler operated Maxwell and Chalmers from 1921 on.

[fol. 617] Q. As director of purchases were you or were you not the head of the purchasing department of the corporation?

A. Yes, sir.

Q. And as such you had supervision over the matter of all purchases?

A. Yes, sir.

Q. Take the Chrysler five to seven passenger closed automobile. Would you tell us approximately how many square feet of glass are in the car, including the windshield and body lights?

A. Well, there is about eighteen to twenty feet in the average sedan body, and about four to five feet in the average windshield.

Q. That would make it somewhere from twenty-two to twenty-five feet of glass throughout, approximately?

A. Yes, sir.

Q. Do any of the Chrysler cars have laminated glass as standard equipment at the present time?

A. The Imperial Chrysler has it as standard equipment.

Q. Is that throughout as well as in the windshield in that particular model?

A. Throughout; yes, sir.

Q. And is your Imperial your highest priced car?

A. Yes, sir.

Q. About what is the selling price of that car?

A. It depends on the body models; runs from around 2500 to 4500 dollars.

Q. Now, as I understand it, with the exception of that single model, at the present time you don't have laminated glass as standard equipment even in the windshield of any other Chrysler car.

A. That is right.

Q. And when did you first put the laminated glass as standard equipment throughout in the Imperial car?

[fol. 618] A. We put it in the original six-cylinder Chrysler Imperial about 1929, and with the introduction of the first eight-cylinder Imperial we eliminated it, and then with the introduction of the latest Imperial car of this year we put it back.

Q. When did you introduce the eight-cylinder Imperial—about?

A. Two years ago.

Q. So it was standard beginning in 1929——

A. Standard for one year only.

Q. In the model that immediately preceded the Imperial Eight. Is that right?

A. That is my recollection.

Q. Why did you discontinue it at the end of that time?

A. Our management felt that it was not of sufficient importance to justify the cost.

Q. A moment ago when I said that I understood that with the exception of this Imperial, where the safety glass is used throughout, that you didn't use it in any other Chrysler car, I meant to include everything—the Plymouth and all the other cars that are sold by the Chrysler. You understand that, do you?

A. We couldn't use it in the Plymouth.

Q. You don't use it in the Plymouth?

A. No, sir.

Q. Or any of the other models?

A. No, sir. That is, as standard equipment. We use it as optional equipment and get paid for it.

Q. If anybody wants to use it and will pay for it, you let them pay for it? Is that the idea?

A. Yes, sir, except we are trying to force it now and endeavoring to ship it wherever possible as optional equipment.

Q. But optional equipment means equipment where the customer pays extra for it? Is that right?

A. Yes, sir.

[fol. 619] Q. Did you ever use laminated glass in a Chrysler phæton—any part of it?

A. We put laminated glass in Chrysler windshields only, and obviously would have had it in a phæton at that time. I don't recall what year it was.

Q. What kind of a car was a phæton?

A. A phæton is an open car.

Q. So the safety glass used in a phæton would be used in what parts?

A. Well, it would be used in the windshield only unless it was a sport phæton that had a windshield in front of the rear seat; in which event it might be used there.

Q. At any rate, excepting on windshields in the front and excepting such cases where there were two windshields, where they had one in the back seat, there would be no other use of laminated glass in a phæton?

A. No, sir. Phæton was just a high-sounding name for a touring car.

Q. Colonel Downey, will you state whether or not at any time, from say the beginning of 1928 up to the present time, there has been any substantial public demand for laminated glass in automobiles?

A. I wouldn't say there has been.

Q. Well, is it your judgment that there has been or has not been?

A. Immediately after Ford came out with laminated glass in the windshield of his Model A automobile producers were worried for fear there would be a demand for laminated glass, and we all contacted with various manufacturers of laminated glass with the idea of assuring ourselves a source of supply should there be a real demand, and a few months after the Ford car was out we found that there was not a sufficient demand to justify using laminated glass. We haven't found since that time that there was any spontaneous demand for laminated glass which would

[fol. 620] justify the prices that were asked during 1928, 1929, 1930 and 1931.

Q. In round figures about what was the total production of cars of the Chrysler Corporation, including all models, say for 1929, 1930 and 1931?

A. 1929 we produced about 450,000 automobiles; in 1930 around 250,000 or 260,000; 1931 about 270,000 or 280,000.

Q. Take the purchasers of your automobiles. How many drivers in a thousand, let us say, would of themselves ask for safety glass in any part of the car in your opinion?

A. Well, we haven't had any particular demand. It is hard to say per thousand. I wouldn't think there would be more than one a thousand.

Q. Who would ask for it himself?

A. Who would ask for it. The only people who ask for it as a general rule are people who are connected with the automobile industry, who are familiar with its advantages, or customers who have either been in an accident and been cut with glass or whose families have been cut with glass. We find that very generally they ask for laminated glass.

Q. People who have been in accidents?

A. Yes, sir.

Q. Take your own case, Colonel. Do you like to have it in the car you drive?

A. Yes, sir.

Q. Are you a fairly speedy driver?

A. Yes, sir.

Q. Take a production of 450,000 cars. How many spontaneous inquiries from customers would you think you need to show there was a substantial public demand for safety glass on the part of the public?

A. I should think you should get ten per cent of your customers.

[fol. 621] Q. Who would be asking for it themselves?

A. Yes, sir. Of course, in the automobile business that would come through dealers normally rather than direct customers.

Q. Has there been any such demand for this glass?

A. No, sir.

Q. Colonel Downey, I show you the transcript of testimony of Mr. Caulfield in this case on page 279 of the printed record. I want to explain to you about this schedule of prices. This is the schedule of prices submitted by the

Triplex Corporation, and the part that is opposite "W. S. Plate" indicates laminated glass made out of plate glass, and the one below means made out of sheet glass. The top schedule, of which the first figure in the upper left-hand corner is $3.23, was in effect, as I understand, from January 1, 1928, to July 1, 1928; the lower schedule, which is marked "C", was in effect from July 1, 1928, to June 1, 1930. The columns at the head—the figures indicate the quantities on which these prices are based. For example, the price of windshields, plate, on purchases up to 1000 square feet per day is shown to be $3.23 per square foot, and the same thing on purchases up to 10,000 square feet per day is shown at $2.79 a square foot. Colonel Downey, will you please tell the Master whether or not your company would have considered the purchasing of laminated glass and installing it in your automobiles on that price schedule, even if there had been no competitor whatever, if you either had to buy it from Triplex or couldn't get it at all?

A. It is my opinion that we would not have used any laminated glass at those prices as standard equipment.

Q. Why?

A. It was not worth it.

[fol. 622] Cross-examination.

By Mr. O'Shea:

Q. Colonel Downey, you did buy some glass from Triplex Safety Glass Company for use on Chrysler cars at these prices set forth on page 279 or higher, did you not?

A. You mean as optional equipment?

Q. For any purpose at all.

A. I don't believe we bought any at this price as standard equipment. It is my impression if we bought any at this price, it was optional equipment.

Q. That is your best recollection?

A. Yes, sir. I think the record will indicate that.

Q. In 1929 didn't you adopt laminated glass on No. 80 Model, Chrysler Sedan?

A. Yes, sir. That is the one I referred to in my direct testimony. We adopted laminated glass as standard equipment on the last six cylinder, Model 80, that we built and we left it off of the succeeding eight cylinder models until this year.

Q. And the glass that you used in that No. 80 model was purchased from the Triplex Company was it not?

A. That is not my recollection; no, sir. I don't recall, in fact, having purchased any considerable quantity of laminated glass for standard equipment from the Triplex Company for any model. I went on record that their price was too high, not justified, and we couldn't get to any agreement.

Q. The 10,000 square feet per day price was $2.20 by the Triplex Company, as shown on Table "B" at page 279.

A. That is what we would call a telephone number in purchasing parlance because there wouldn't be any chance to use that quantity in jobs that would justify laminated glass.

[fol. 623] Q. The fact is, however, you paid $2 to the Duplate Corporation per square foot for your glass in March, 1929. Isn't that the fact?

A. Yes, sir, I think so.

Q. So the differential between $2 and $2.20 is what made it an impossibility to purchase the Triplex glass? Is that what we are to understand?

A. I don't see any $2.20 figure. The only $2.20 I see is 10,000 feet per day. We couldn't use that. That was a very small production model, averaged probably less than ten vehicles per day. We would be in the $2.66 bracket.

Q. The fact is that in March, 1929, you used 29,678 square feet on the Chrysler car?

A. You may have shipped that quantity.

Q. That was purchased from the Duplate Company.

A. They may have shipped that quantity, but I doubt whether it was used at that time.

Q. Well, that was a substantial quantity you would say, would you not?

A. Way in excess of our normal use.

Q. Of course, you wouldn't know what demand was being made by the purchasing public through the laminated glass producers' distributors, would you?

A. Well, as a matter of general information, everybody engaged in laminated glass at that time usually approached both engineers and purchasing departments and advised them of all the people who by any chance did use it or might want to use it.

Q. But you wouldn't carry in your mind how many of those might ask for laminated glass?

A. No, sir.

Q. In these early days of 1927, 1928, 1929, and when I say early days I am referring to the early days in the laminated glass industry, is it not a fact most of the demand came through the distributors since the manufacturers didn't have it as standard equipment?

[fol. 624] A. There may have been a large demand, but if so I was not aware of it.

Q. You wouldn't be apt to know the details of such a demand as that?

A. No, sir.

Q. Now, if a manufacturer of laminated glass in any particular year was selling something over 2,136,000 square feet of laminated glass, would you consider that that constituted a demand for that character of glass?

A. Not upon that statement of facts alone; no, sir. I assume that you refer to the Ford windshield glass?

Q. I am referring to all laminated glass, whether it be used in Fords or any other car, for sheet glass or plate glass.

A. It is my belief that that quantity was largely *the* Ford windshield glass.

Q. That is the fact. But you still would say that such a quantity would not constitute some evidence of a demand on the part of the public?

A. I would say that that quantity, or half of that quantity rather, used by Chrysler, Nash, Buick, and cars of that class throughout the body would constitute a demand. It is my firm conviction that the Ford quantity and the Ford glass not only did not create a demand for laminated glass but was a distinct detriment to laminated glass.

Q. Well, then, as I understand it, if laminated glass was being sold by one of the manufacturers to the extent of over two million square feet of glass to people other than the Ford for Ford production, you would consider that that would constitute a substantial demand for laminated glass?

A. Yes, I think that is a fairly substantial quantity.

Q. Now, from the very beginning, as I understand it, and when I say beginning I mean during the years '27, '28,

[fol. 625] you always did advertise and carry laminated glass as the optional equipment for any one who wished it?

A. Yes, sir.

Q. That is your direct testimony?

A. Yes, sir.

Q. Colonel Downey, do you recall that in the year 1928 the State of Massachusetts passed some legislation with respect to the requirement of using laminated glass in automobiles that were used for public transportation?

A. I recall that one state had some such legislation.

Q. Do you recall about when that was?

A. No.

Q. Do you remember whether it was '28 or '27?

A. It was in the early days.

Q. Wouldn't you say that such legislation as that was some indication of a demand on the part of the purchasing public for the use of this glass?

A. I would not.

Q. Do you recall whether or not an ordinance was passed in the City of New York with respect to the same thing? That is to say, the use of laminated glass on public vehicles, taxicabs and the like.

A. There is such an ordinance and in my opinion it was sponsored by manufacturers or a manufacturer of laminated glass.

Q. There is such an ordinance?

A. Yes, sir. In fact, it specifies, I believe, Duplate or equal.

Q. But you wouldn't consider that as any evidence of a demand on the part of the public?

A. No, sir.

Q. Now, in addition to that wasn't there some legislation in the State of Michigan passed some years ago which was to become effective a number of years after the passing of [fol. 626] the legislation, the effective date I think being about around now?

A. Michigan has passed a law which provides for the use of laminated glass in vehicles for hire, effective I believe July 1, 1933, and in all vehicles about one year later.

Q. Is that limited only to vehicles for hire, or does it cover all passenger vehicles?

A. It covers all passenger vehicles about July 1, 1934.

Q. As I understand it, Colonel Downey, in 1929, spring

of 1929, when you began on behalf of the Chrysler Company purchasing laminated glass in substantial quantities from the Duplate Corporation, you were actuated in buying the Duplate glass primarily because of the lower price that company had over the price the Triplex Plate Glass Company was quoting you.

A. We were actuated because of the lower competitive price and also because it put it more nearly in a range where we felt we could afford to put it in a car.

Redirect examination.

By Mr. Smith:

Q. Colonel Downey, you were asked in cross-examination about the sales of laminated glass by a manufacturer somewhere around 2,300,000 square feet a year. As I understood your testimony of the number of square feet throughout in a closed car, that would be the glass complete for about 100,000 automobiles. Is that approximately correct?

A. Yes, sir. It is not my understanding though that that figure is arrived at in that way. That figure represents mostly Ford windshields.

Q. Well, let us assume it does not. Let us assume it represents cars not confined at all to the Ford. Supposing [fol. 627] we excluded the Ford production entirely. You were asked that question, as I understood it, for the year 1929. Leaving the Ford production out of the picture, approximately in round figures how many automobiles were produced in the United States in the year 1929?

A. My recollection is around four million in 1929.

Q. Now, if in those circumstances the sales of this two million three hundred thousand approximately square feet of safety glass had been induced by the efforts of the manufacturers to induce the public to take it, would you or would you not think that that indicated a demand on the part of the public itself to have it?

A. Well, I have already stated in my previous testimony that I didn't think personally that there was any real demand on the part of the public for laminated glass, and the actions of Chrysler Motors in its handling of laminated glass, which is or should be in the record in this case, indicates Mr. Chrysler didn't think there was a real demand for it, or any of the other executives in the corporation;

because if there had been a real demand for it, it certainly would not have been taken out of the highest priced automobile we built in 1930 and 1931, and if there had been a real demand for it, it would have been put in the cheaper priced cars and the Dodge Eight.

Q. And your testimony as to the fact in your opinion there was no public demand, that applies to this illustration of 2,300,000 square feet, does it?

A. I still think there was no demand for laminated glass to justify paying even one-half the price that was asked for it in 1929, regardless of any figures that might be produced as to total sales from either factories or jobbers or as optional equipment.

Q. You were asked about the differential between Duplate laminated glass at $2 and the figure of $2.20, [fol. 628] I believe, for Triplex glass. As I understand it, the $2.20 Triplex figure was based upon purchases of 10,000 square feet per day. Is that your understanding?

A. Yes, sir.

Q. When the Duplate Corporation sold you this glass at $2 a square foot, if that was the price, did they make any requirement you would have to buy 10,000 square feet per day?

A. No, sir.

Q. If you bought a hundred square feet per day, would you get that price?

A. Yes, sir.

Q. Now, you said that you thought the Ford introduction of the laminated plate glass on windshields of the Model A car, which I believe came out late in 1927, this being standard equipment for that windshield—you said you thought that was a detriment to the laminated glass business. Why do you say that, Colonel?

A. I think it is dangerous to have sheet glass in the windshields or doors of any vehicle. That glass was wavy, caused distorted vision, turned yellow. In my opinion the safety features were more than overcome by the detrimental effect of the waves and color.

(Adjournment taken until 2:15 P. M. at the offices of the Hudson Motor Car Company.)

[fol. 629] 2:15 P. M.

Met pursuant to adjournment.

J. E. McLARTY, a witness produced on behalf of the defendants, having been duly sworn, testified as follows:

Direct examination.

By Mr. Smith:

Q. Mr. McLarty, where do you live?
A. Detroit.
Q. And how long have you lived in Detroit?
A. Since 1925.
Q. Are you connected with the Hudson Motor Car Company?
A. Yes, sir.
Q. And what is your position with the company?
A. Service manager.
Q. What does that mean in a few words—service manager?
A. The service department takes care of the supplying of the spare parts and all data contingent on the maintenance of the vehicles after they are built?
Q. You are in charge of that department, are you?
A. That is right.
Q. How long have you held that position?
A. I have been service manager since 1924, but there is one break in that.
Q. What is that?
A. I was made assistant sales manager and left the department for a year and then came back in it again.
Q. During what year were you assistant sales manager?
A. 1929.
[fol. 630] Q. At the present time is safety glass used as standard equipment in any Hudson cars?
A. It is in the windshields of a few of our models.
Q. In how many of your models?
A. I think there are seven.
Q. Are they the most expensive or the cheaper models?
A. The expensive models.
Q. How many Hudson models are there altogether?
A. There are twelve.
Q. In the remaining five, as I understand it, it is not used as standard equipment even in the windshields?
A. No, it is not.
Q. And the only cars it is used as standard equipment is in the windshields of the seven models you first spoke of?

A. That is true.

Q. Is safety glass used as standard equipment in any of your Essex cars?

A. No, sir.

Q. How does the Essex compare in price with the Hudson? I don't mean in dollars, but which is the more expensive?

A. Well, the Hudson is the more expensive.

Q. And I presume in number of units sold in the ordinary year you sell more Essex units than you do Hudson units?

A. That is true.

Q. A considerable number?

A. Yes.

Q. Was safety glass standard equipment even in the windshields of any Hudson model in 1931?

A. No, sir; neither Hudson or Essex.

Q. In 1929 and 1930 was safety glass standard equipment in the windshields of any Hudson?

[fol. 631] A. Yes, safety glass was standard equipment in some Hudson models in 1929.

Q. Was it the more expensive models?

A. The more expensive model.

Q. And were there some of the Hudson models that didn't have it even then?

A. That is true.

Q. Has safety glass ever been standard equipment in the body lights of any of your cars?

A. No, not in body lights.

Q. And I think you did say that in 1931 your company discontinued the use of safety glass in any way in any of your cars?

A. Yes, they were not used in any car in 1931, but were available at additional charge if wanted.

Q. That would be called optional equipment?

A. Optional equipment, yes.

(Papers marked Defendants' Exhibits "M" and "N.")

Q. Mr. McLarty, I show you a copy of a letter marked Exhibit "M," being a copy of a letter dated April 5, 1928, addressed to Hudson Distributors, and, with the typewritten signature at the end as follows: "Hudson Motor Car

Company, J. E. McLarty, Service Manager." Do you recall the sending out of a letter to your distributors of which that was a copy?

A. Yes, I do.

Q. And was that letter sent out on or about April 5, 1928?

A. Yes, sir.

Q. Did you have it sent?

A. Yes, sir.

Q. And is that exhibit in your hand a true copy of it?

A. Yes, sir.

[fol. 632] Q. I show you also a small copy of a poster which is marked Exhibit "N." This poster is in varicolored type and at the top says, "Hudson Essex Super Sixes." Do you recall that poster?

A. Yes, I do.

Q. Will you state whether or not when you sent the letter of April 5, 1928, it was accompanied by a small poster similar to the one you have in your hand?

A. The facsimile of this was attached to each letter.

Q. The facsimile of Exhibit "N"?

A. Yes.

Q. Do you know whether or not larger posters similar in lettering to the small one you have identified were distributed to your dealers at that time?

A. Well, I never saw the larger one but we were informed at the time that there would be a facsimile of the larger poster that would be supplied to the buyers of the glass to advertise it.

Q. Mr. McLarty, who paid for preparing this small poster that we have here?

A. The Triplex Company delivered them to us.

Q. They delivered them to you?

A. Yes.

Q. And then you prepared this letter of April 5, 1928, and sent it out?

A. Yes, mailed it out.

Q. Who paid for the large posters that were given to your dealers?

A. They did.

Q. Who did?

A. The Triplex Company.

Q. You didn't pay out any money for posters?
A. No, sir.

Mr. Smith: Counsel for defendants offer in evidence the letter dated April 5, 1928, Exhibit "M," and the small poster which accompanied it, Exhibit "N," and we would like, [fol. 633] if your Honor will permit, to have these photostated so that we can withdraw the originals and return them to Mr. McLarty.

The Master: All right.

Q. Now, Mr. McLarty, it has been testified in this case already that about December, 1927, the Ford Motor Company brought out their Model A automobile on which, as I understand it, there was furnished a safety glass windshield as standard equipment. Do you recall that circumstance?

A. Yes, I do.

Q. Do you remember whether that had any effect on the automobile manufacturers? Did any discussions arise out of that?

A. Well, in the following spring we were speculating as to what effect that would have on the buying trend.

Q. That is, as to whether the other companies would have to supply safety glass windshields as standard equipment?

A. Ourselves included.

Q. Including your company?

A. Yes.

Q. What conclusion did you reach about that, Mr. McLarty?

A. About this time—April—we considered this would be an opportunity of determining what the trend was in so far as our cars were concerned because we had been approached to include it in our windshield. I understand—I can't state that definitely, but I understand we were approached. That is, the company or the purchasing department were approached to buy this type of glass instead of plain glass for insertion, but the company didn't see its way clear, or at any rate didn't accept the proposition.

[fol. 634] Q. I see in the first paragraph of this letter dated April 5, 1928, there is a reference to "many inquiries from our distributors as to the possibility of their obtaining safety glass windshields," and so forth.

A. Yes.

Q. Does that paragraph refer to this inquiry that was started by reason of the Ford experiment?

A. That is right.

Q. Did you or did you not receive requests from your distributors or others to supply these safety glass windshields as standard equipment in answer to this letter of April 5, 1928?

A. No, we didn't. I can state that I didn't receive any. You mean that in response to this we received a request to put them in in our production?

Q. Yes, sir.

A. No, we did not, not to my knowledge.

Q. What was your own opinion about it, Mr. McLarty, as to whether the use of the windshields by the Ford Company, in view of this experience you had, made it necessary for your company to adopt them as standard equipment? I mean the safety glass windshields.

A. Well, at that particular time our Essex car was priced within $150 of the Ford car, and being in the lower priced brackets, we naturally were rather watching this proposition, because if it was effective in the sale of Ford automobiles, it might affect our particular market because we were rather close to that group ourselves.

Q. What was your conclusion about it as to whether you had to put it in or not?

A. The conclusion I had at the time was rather a negative one.

Q. Meaning what?

A. Negative that it would be compulsory or even necessary for us to put it on.

[fol. 635] Q. Meaning it would not be compulsory?

A. That is true. Our reaction and our distributors' reaction to it was very negative. Put it this way. In fact, I recall of no distributor ordering any of this glass in any quantity whatsoever. Now, undoubtedly some was ordered, but if I recall rightly, my wording in that letter was in the form of soliciting information from the field to us that we could in turn transmit to this Triplex Company to see if it would be worth while for them to make it or not. In other words, they had to cut certain glass sizes or make a certain set-up to make it, and unless there was some demand for it, our windshield being a different shape from others, that it

wouldn't pay them to go ahead, and that was the tentative arrangement I had with their representative at the time, if I recall, that we would try to sense this market and see what there was to it and transmit that to them; they in turn, if they got enough orders, would proceed to make it.

Q. Now, in this information that was given to your dealers in your letter of April 5, 1928, and by this poster, did that mean that the Hudson Company was supplying this glass or that the Triplex Company was supplying it?

A. The Triplex Company.

Q. And did it mean the Hudson Company was to be paid for it or the Triplex Company?

A. For the glass?

Q. Yes.

A. The Triplex Company.

Q. So if anybody had bought a Hudson car and had desired a Triplex windshield in that, in addition to paying the price of the car he would have had to pay the Triplex Company the price of the windshield?

A. That is true.

[fol. 636] Cross-examination.

By Mr. O'Shea:

Q. Mr. McLarty, how soon after sending out this circular letter and these posters did you go to standard equipment in seven of your cheaper models for the windshield in them?

Mr. Smith: That question is objected to because it is contrary to the testimony. It says "seven of the cheaper models"; whereas, the testimony was seven of the more expensive models.

Q. Did you go to standard equipment on seven of the more expensive rather than the cheaper models?

A. That applies to 1932?

Q. Yes.

A. Seven of our most expensive models have safety glass in standard equipment. That is the current year.

Q. Didn't you have standard equipment on any of the cars for windshields only at any time from 1927 on?

A. Yes, 1929.

Q. And how many cars did you have?

A. That was three models.

Q. Now, how soon after you sent out this letter to your dealers and this poster did you go to standard equipment on the three cheaper models?

A. That would be the three more expensive models.

Q. It was the three more expensive models in 1929 that you went to standard equipment in?

A. That is right.

Q. How soon after did you go to standard equipment on those three models after sending out these two exhibits?

A. That would be seven months. That is April, 1928, and it was introduced in January, 1929. It would be eight months.

[fol. 637] Q. Do you recall when you bought the glass for the standard equipment in those three models?

A. I don't handle that, sir.

Q. It would have been some time, however, prior to the seven months?

A. You see that is handled by another department.

Q. You wouldn't know that?

A. I wouldn't have any data.

Q. Well, as service manager of the Hudson Company didn't you think there was some demand for safety glass on these models when you put it on as standard equipment in your three expensive models?

A. Well, in answering that, the decision as to whether it would be used or not, that didn't rest with me or the service department.

Q. But you as an experienced service man, wouldn't you conclude that since those who had the decision had determined to put it on as standard equipment on three models that they had concluded there was some public demand for it?

A. I think they put it in the three more expensive models to enhance their value. It was one more talking point for an expensive car.

Q. You think this glass would enhance the value and selling possibilities of a car?

A. I do to a limited extent.

Q. Do I understand from your direct testimony that if a customer of a Hudson car went to a dealer and asked for safety glass in his car, that the dealer would refer them to the Triplex Company?

A. No. Let me put it this way. If a customer required Triplex glass in his car, his ability to get it would have been contingent upon whether the dealer or distributor from whom he was buying the car had purchased any of it from them or not. You see none of this glass was installed in this factory or delivered or sold through this factory. It was by direct arrangement between the Triplex [fol. 638] Company and the individual distributor or dealer as the case may be.

Q. Of course, the transaction probably would have been this, wouldn't it: if a purchaser of a Hudson car asked a Hudson dealer to have his car equipped with safety glass, the dealer, if he had the safety glass in stock or if he didn't have it in stock, would order it direct from the Triplex and have it sent to the dealer. Is that the course?

A. Yes, that would be the procedure that would be followed.

Q. You wouldn't have any information as to how many purchasers of Hudson cars did, in this period of 1928 and 1929, ask the dealers to install safety glass, would you?

A. No, I wouldn't know.

Q. Now, from your experience in the automobile business, what yould be your feeling with respect to an article that was being sold by the manufacturer to the extent of 2,300,000 square feet per year, as to whether such amount of sales constituted a demand for it or not?

A. Do you mean a demand from the public or a demand from the man who was buying it? There is a little difference there in my mind.

Q. I had in mind as to whether such an extent of sales as that would not in your opinion constitute some evidence of a demand on the part of the public.

A. Well, I would answer that by saying not necessarily.

Q. If the sales for such glass go up to six million in a year, would you think that constituted some evidence of a public demand for the article?

A. Well, maybe I am rather biased in knowing the particular source to which this glass was going, but I still don't think that indicates a public demand.

[fol. 639] Redirect examination.

By Mr. Smith:

Q. Mr. McLarty, I call your attention to the second paragraph on page 2 of your letter of April 5, 1928, which

starts with the words, "Will you please give this proposition your consideration and advise us," and so forth. Will you state whether or not your letter contained a request to your distributors to advise you as to the requirements for this safety glass?

A. Yes, it did.

Q. And in ordinary course, it there were such requirements, would you get advice to that effect from your distributors?

A. Yes, I would.

Q. Did you receive such advice?

A. That is one thing I can't recall receiving. I think I can honestly say I can't recall receiving any.

Q. If you had received any requests for substantial amounts of this safety glass from your distributors, would you think you would remember it?

A. Well, I would say I should, but I can't recall any demand. If I recall rightly, I was to notify this company if it looked like a demand in sufficient volume to warrant their expenditure, what they planned to expend in going ahead with this program.

Q. Did you give them any such notice?

A. I can't recall giving them any such notice at all and our files of '28 are destroyed.

Q. Your letter files of that year are destroyed?

A. Yes.

Q. How did it happen they were destroyed?

A. We do that automatically. In our department the minor files are kept only twelve months, but the serial letters like this one here are carried for many years.

Q. When you just now pointed and referred to "this", you refer to the letter of April 5, 1928?

[fol. 640] A. Yes. We retain that and so-called service bulletins that are issued from year to year we do retain, but our correspondence otherwise is destroyed after two years, or one year part of it. It all depends on the nature of it.

Recross-examination.

By Mr. O'Shea:

Q. Do you recall, Mr. McLarty, whether there was any understanding between you and representatives of the Tri-

plex Safety Glass Company of North America that after the issuance of this Hudson Motor Car Company letter of April 5, 1928, the salesman of the Triplex Safety Glass Company was to call on your distributors and explain to them the advantages and the utility of this glass?

A. I believe that was true. I think from his location he said he would call on some of the eastern ones in the vicinity of New Jersey there, like New York City and so on, to present his proposition personally to them. I seem to recall that.

(Adjournment taken until further notice.)

Pittsburgh, Pennsylvania,
Wednesday, September 21, 1932.

Met pursuant to adjournment.

Present: G. Dixon Shrum, Esq., the Master; Ambrose L. O'Shea, Esq., of counsel for the plaintiff; Marshall A. Christy, Esq., William Watson Smith, Esq., L. E. Hickman, Esq., counsel for the defendants.

(By Defendant's Counsel): In pursuance of the order of the Master, which appears on page 762 of the type-[fol. 641] written record, and without waiving its exceptions to said order, defendant has produced to be copied into the record at this point a paper entitled "Statement of Cost of Thin Polished Plate Glass for Years 1928, 1929 and first five months 1930."

STATEMENT OF COST

	Year 1928	Year 1929	1st 5 Mos. 1930
Manufacturing and Administration	.15590	.15637	.18569
Allowance for use of Patented Process and Apparatus	.12474	.09907	.09694
Interest on Investment 6%	.02553	.02021	.03482
Federal Income Tax	.02267	.02194	.01395
Loss Cutting	.01548	.01621	.02590
Total Cost per Foot	.34432	.31380	.35730

Mr. O'Shea: Mr. Master, I would like to formally offer certain additional exceptions to the statement of account as filed by the Pittsburgh Plate Glass Company, and ask those be made a part of the record.

ADDITIONAL EXCEPTIONS TO DEFENDANT'S STATEMENT OF ACCOUNT

(Additional exceptions of the plaintiff relating particularly to the statement of Pittsburgh Plate Glass Company of cost of thin polished plate glass in the years 1928, 1929 and the first five months of 1930.)

Twentieth. Plaintiff objects to the statement of account as filed for the reason that it is not in proper form in that it is not verified by any officer of Pittsburgh Plate Glass Company.

Twenty-First. Plaintiff objects to the item on said "Statement of the Cost of Thin Polished Plate Glass for the years 1928, 1929 and the first five months of 1930" en- [fol. 642] titled "Allowance for use of Patented Process and Apparatus" for the reasons:

(1) That such item is not a proper element of cost.

(2) That if said item is intended as a notice of claim on the part of the defendant for an apportionment of profits:

(a) That it is improperly applied in the account as filed.

(b) That as a matter of law the defendant is not entitled to an apportionment of profits in this case since the patent calls for and the infringement consists of a single unitary structure.

(c) That as a matter of law the defendant is not entitled to an apportionment of profits in this case since the entire commercial value of the infringing laminated glass sold by the defendant arose from the patent in suit, and therefore the plaintiff is entitled to recover from the defendant the total profits derived from the manufacture and sale of such infringing laminated glass.

Twenty-Second. Plaintiff objects to the item on said "Statement of the Cost of Thin Polished Plate Glass for the years 1928, 1929 and the first five months of 1930," entitled "Federal Income Tax" for the reasons:

(1) That such item is not a proper element of cost.

(2) That if it is claimed as an allowance due to defendant in diminution of profits, it is improperly computed.

(3) That as a matter of law, the defendant is entitled as an allowance for Federal Income Tax, to only so much of any tax it may have paid on infringing profits as the [fol. 643] total assessment for such tax bears to the amount allowed by the Master (exclusive of tax allowance) with proper safeguards for the protection of the plaintiff in the event that the defendant recovers from the government some part of the tax initially paid by it.

Twenty-Third. Plaintiff objects to the item on said "Statement of the Cost of Thin Polished Plate Glass for the years 1928, 1929 and the first five months of 1930" entitled "Loss Cutting" for the reasons:

(1) That there is no proof in the case that this item pertains to a loss arising from cutting the glass, or otherwise.

(2) That all losses arising from cutting the glass, breakage, or other shrinkage is included in the item entitled "Manufacturing and Administration."

(3) That no figures in substantiation of any such item appear on the books of Pittsburgh Plate Glass Company.

(4) That this item is based on speculation and is computed on mere assumptions, not based on any facts appearing on the books of the company or in the testimony of this accounting, but, on the contrary, is computed on assumptions of facts that are untrue.

(5) That the claim involved in this item is a bald attempt to offset a theoretical loss against actual profits, whereas as a matter of law, the defendant is not entitled to offset any losses, theoretical or actual, against profits.

(6) That the sales used in making the computation of the theoretical loss claimed by this item are not infringing sales.

[fol. 644] (7) That the cost of the glass involved in the computation of the loss claimed by this item is not the true cost of such glass.

Plaintiff reserves the right to file such additional exceptions to the accounts heretofore filed by the respective de-

fendants as it may be advised are necessary and proper in view of the testimony that has heretofore and may hereafter be given in this proceeding.

C. L. McHenry, who has heretofore been sworn as a witness in this case, is produced at request of the plaintiff and testifies as follows:

Direct examination.

By Mr. Christy:

Q. Mr. McHenry, did you compile this statement just copied into the record and do you believe it to be correct?
A. Yes.

By Mr. O'Shea:

Q. Directing your attention, Mr. McHenry, to the item on the "Statement of Cost of Thin Polished Plate Glass for Years 1928, 1929 and 1st Five Months 1930" entitled "Federal Income Tax," will you please state on the record just how you computed that item?

A. This represents the tax paid U. S. Government on the earnings as designated in the report. I have taken the profits on the thin polished plate glass less depreciation, getting the income. On this income I have computed in the year 1928, 12 per cent.; 1929, 11 per cent.; first five months of 1930, 12 per cent., which are the Federal income tax rates.

Q. Now, will you please state the figure that you used as income or profits in your computation, and I assume you computed all the years by the same principle?
[fol. 645] A. Yes.

Q. So let us take 1928 as an example of that principle and confine your answer to 1928.

A. 1928 profit on thin glass as used is $1,361,191.67.

Q. And what was the quantity of glass on which you computed that amount of income, in square footage?

A. I do not have a list of the sales in feet.

Q. You mean you haven't them with you?

A. I don't have them here.

Q. They are available, are they not?
A. Yes, sir.

(Paper handed witness by counsel for plaintiff.)

A. (Continued.) I will use this statement you hand me subject to checking the figures for accuracy. This feetage is 7,206,002.

Q. Can you now state the average selling price of those sales?

A. This price is subject to check of .3512.

Q. Will you now please state the cost figure that you used in making your computation for allowance for income tax?

A. You mean the profit or the cost of the glass sold?

Q. The average cost of the glass sold.

A. I do not have that here. In fact, I did not use the cost except as shown by our books. I used the profit.

Q. Well, in order to find out what the profit is you had to, of course, use the cost?

A. Naturally.

Q. That is what I would like to know—what cost you used in arriving at that profit.

A. The cost would be $1,169,211.32.

[fol. 646] Q. Can you reduce that to unit cost per square foot?

A. $.1623.

Q. Mr. McHenry, will you please state the figures by which you computed that .1623 and your method of computation?

A. The cost is $1,169,211.32; divided by the feet sold of 7,206,002 feet, gives a cost of .1623 cents.

Q. In computing this Federal income tax item you applied the difference between the average selling price and the average cost?

A. We do not use the cost and selling price at the average per foot. We subtract the cost from the sales, which gives us the actual gain.

Q. That amounted, as I understand it, to $1,361,191.67?

A. Yes, sir.

Q. And then, in order to arrive at your figure .02267 as appears on the statement of cost of the thin polished plate glass for the year 1928, which statement is filed in this case, did you divide the total footage sold, to-wit, 7,206,002, into that $1,361,191.67?

A. This figure of 7,206,002 that has been previously stated as sales, subject to verification, now appears to be the amount of production, and our sales in any one year never check with our production.

Q. Mr. McHenry, will you please get from the records of the Pittsburgh Plate Glass Company and produce here such of them as will enable you to testify fully on just how you computed the item entitled "Federal Income Tax" appearing on the statement which the Pittsburgh Plate Glass Company has filed herein, purporting to show their cost of sales?

A. I will.

Q. Will you also produce such books, records and documents as will enable you to testify fully with respect to the item appearing on this statement of cost of thin polished [fol. 647] plate glass for the years 1928, 1929 and first five months of 1930, entitled "Loss Cutting," and stated to be in the year 1928 .01548?

A. I will.

Q. I should like particularly to have you produce Volume 60 of your duplicate statements.

A. Yes.

Q. I assume those will contain the necessary pages to enable you to testify on these two subjects, particularly page 357 of that volume.

A. I will get them.

(Adjournment was taken until 1:30 o'clock P. M.)

1:30 o'clock P. M.

C. L. McHenry resumes the stand.

Direct examination (continued).

By Mr. O'Shea:

Q. Mr. McHenry, are you now able to state the quantity of sales in the year 1928 in square footage of thin polished plate glass?

A. In 1928 the sales were 7,206,002 feet and 5 inches.

Q. Will you now state what the selling price of that footage was?

A. .3512.

Q. That .3512 is the average selling price? Is that correct?

A. It is.

Q. And is the figure which you gave this morning, to-wit, .1623, as the average cost per square foot the figures that you did use in computing your income tax?

A. The figure .1623 was used as cost.

[fol. 648] Q. In computing the income tax?

A. Yes, sir.

Q. Were there any other elements than those you have stated this afternoon that you used in your computation of this Federal income tax?

A. I can think of none.

Q. Well, as a matter of fact, to refresh your recollection, I think you did use some depreciation, did you not, but that is in the .1623. Is that correct?

A. That is right.

Q. Am I correct, then, in stating that in computing your Federal income tax you did not use the item appearing on the statement of costs of thin polished plate glass, etc., and particularly for the year 1928, entitled "Allowance for use of Patented Process and Apparatus, .12474"?

A. Yes, sir, you are correct.

Q. Nor did you use the item appearing on the said statement and entitled "Interest on Investment 6%, .02553"?

A. We did not use that item.

Q. Those two items were not used as elements of cost?

A. No, sir.

Q. Is it also correct to say that you did not use the item on the said statement entitled "Loss Cutting, .01548"?

A. We did not use this as a separate item, although it is reflected in our sales and cost of sales.

Q. That you used in the Federal income tax?

A. Yes, sir.

Q. Well, will you explain just how that is reflected in the figures that you used in your Federal income tax?

A. It is reflected in the sales at the profit shown by these two brackets of glass.

[fol. 649] Q. That is to say, it is reflected in the entire selling price?

A. Selling price and cost.

Q. Well, is it an element of cost in addition to the .1623?

A. Not in addition to that figure because it is included in the profit shown at that point.

Q. And is already reflected in the figure of .1623?

A. Yes, sir.

Q. Mr. McHenry, directing your attention now to this statement of costs of thin polished plate glass for the year 1928, and using that year as a typical year, and calling your further attention to the specific item entitled "Manufacturing and Administration", does that figure include and reflect the manufacturing cutting losses and other shrinkage that took place in the manufacturing operation and process?

A. It does.

Q. And includes all of such cutting, shrinkage, breakage, etc.?

A. It covers the actual shrinkage.

Q. Now, will you please explain the item appearing on this statement of cost of thin polished plate glass entitled "Loss Cutting"?

A. This is a loss due to cutting small pieces or small pieces developed in cutting that are sold at a loss, and in our total sales these losses are reflected but in our accounting with Duplate these losses are not reflected because this cutting loss was due to a greater extent in cutting orders for Duplate, due to their sizes being small or smaller than the average sale; therefore, in our sales to Duplate we have taken the glass sold at the actual selling price but have not considered without this item the loss in making strips and glass 1 to 2 feet 8 that is sold at a loss. Now, to arrive at this loss we tabulated the feetage and money of glass [fol. 650] 1 to 2 feet 8 and strips, which in the year 1928 amounted to 911,129 feet, money $188,095.55, or was sold at an average selling price of .20644. Our cost for that glass, as shown by the accounting filed, up to that point was .32884 or a loss per foot of .12240, making the amount claimed for this item in 1928 of $111,522.19.

Q. To whom were these sales that you included in this item "Loss Cutting" made?

A. They were all sales outside of Duplate Corporation.

Q. They were not glass used in the manufacture of Duplate?

A. Not a foot of it.

Q. Can you state generally whether or not they were sold to other manufacturers who fabricated it into laminated glass?

A. I would say that none of it was sold for laminating. Most of it or a great part of it was sold for small mirrors.

Q. Mirrors of the cheaper variety?

A. Yes.

Q. Now, you say in computing that loss you used a figure of .32884 as cost?

A. Yes.

Q. Just what elements appearing on the statement of cost of thin polished plate glass are included in that cost of .32884?

A. All elements except cutting loss.

Q. That is to say, in making that computation of loss you included the .15590 which is entitled "Manufacturing and Administration Cost", the so-called "Allowance for use of Patented Process and Apparatus", the "Interest on Investment" and the "Federal Income Tax"?

A. Yes, sir.

Q. Now, can you state from your working papers whether or not all of the glass in the 1 ft. to 2 ft. 8 bracket [fol. 651] was sold for more than .15590 in the year 1928?

A. The average selling price, the 1 to 2 ft. 8, of this that I have taken as cutting loss was .2387.

Q. So that all of the glass of those sizes, to-wit, in the 1 to 2 ft. 8 bracket, sold at a selling price higher than your manufacturing costs. Is that correct?

A. Not when you consider your cost to be, as stated on our report, .32884.

Q. That is true, Mr. McHenry, but my question is whether it is not a fact that all of the glass included in this item in the brackets of from one foot to two foot eight inches sold for a higher price than your actual manufacturing and administrative cost as apppears on your books.

A. Yes, it is.

Q. As I understand it, even the average of all the glass included in this item entitled "Loss Cutting"—that is to say, both the glass within the 1 ft. to 2 ft. 8 in. brackets and the so-called strip sizes sold at an average of .20644?

A. That is true.

Q. And isn't it also true that in your income tax you paid a tax and reported an income on all of those sales?

A. It is true.

Q. Did you, for any purpose, in your accounting system take into consideration in determining your profit and loss

any figures which you have used in calculating this item entitled "Loss Cutting" on the statement as filed in this court?

A. No other than are reflected in our cost of sales and sales.

Q. And by that you mean that as this was reflected, either as a profit or loss, that was reflected in your figure of .1623 [fol. 652] which you used for income tax purposes and your figure of .15590 as you use on this statement?

Mr. Smith: We would like to inquire what counsel means by the word "this" in this question. I think the question is not very clear.

Q. What I would like to know, Mr. McHenry, is whether in any of your profit and loss statements over and above what you have taken as your actual manufacturing costs you have charged against costs any such item by way of a loss as you have charged in this statement.

A. We have not.

Mr. O'Shea: I should lie to offer the Schedules "J" in evidence and have them marked as Exhibit 8.

Cross-examination.

By Mr. Christy:

Q. Mr. McHenry, I would like it to appear, if it is a fact, that the various records of the company and the computations which you made in connection with them, as summed up in this "Statement of Cost of Thin Polished Plate Glass for the years 1928, 1929 and the 1st Five Months of 1930", were exhibited and explained by you to a representative of the plaintiff before this statement was offered.

A. It is a fact.

Q. Who was it?

A. Mr. Caulfield and Mr. Downey.

Q. And you endeavored to answer and did answer all questions which they had to put to you in connection with that?

A. I did.

Mr. O'Shea: If your Honor please, for the purpose of saving my rights—I don't know the materiality and I there- [fol. 653] fore object to the materiality and competency of

this testimony if it is intended to take the place of defendant's proof of any of these items.

The Master: We will hear it subject to your objection.

Q. Were the books and records actually shown to these representatives of the plaintiff?

A. They were.

Mr. O'Shea: Same objection.

The Master: Same ruling.

Q. Now, this item of Federal income tax which has been discussed here today, as it appears on this statement, that represents taxes actually paid by the company?

A. Federal income tax actually paid to the Federal Government.

Q. That is, it is not a mere book item? It is actually money paid out?

A. Actual cash.

Q. And the interest on investment, without going into details, will you tell how that was computed and what it includes?

A. It includes value of land, buildings and equipment, factory stocks of materials, finished polished plate glass and cash required to operate the plant, computed at 6 per cent. per annum.

Q. These were actual appraised valuations, were they, as appears on the company's books?

A. They were actual book valuations with the exception of cash required to operate the business, which was arrived at by taking total expenditures for a year, dividing these by twelve months, acquiring the amount per month and including enough for two months' operations.

[fol. 654] Q. That is, operations in the plant where this thin glass was made. Is that correct?

A. Yes, sir.

Q. That might be defined as liquid capital required to carry on the business?

A. Yes. At two months if anything it is very low.

Q. It would ordinarily be reflected, if this plant were the only one operated by the Plate Glass Company, as cash in bank and bills receivable, would it?

A. Yes, sir.

Q. But because this was only one of the company's

plants, you had to take, as you say, the amount requisite to run the plant for two months. Is that it?

A. That is it, and I think it is low as no corporation organized can start out with only enough capital to operate for two months—pay their bills for two months.

Q. Now we come to the item entitled "Allowance for use of Patented Process and Apparatus." Am I correct in saying that you were instructed to compute this item as representing saving in cost of manufacture of plate glass due entirely to the introduction of new methods of manufacturing which this plant was equipped to carry out?

Mr. O'Shea: Objected to as incompetent and immaterial and as calling for a conclusion, as constituting no proof that the amount claimed was an actual saving.

The Master: We will hear the answer subject to the objection.

A. That is true.

Q. Will you please state the way in which you made the computation, the result of which is given on your statement?

A. I took the cost of producing quarter-inch glass at our works at Kokomo, Indiana, and Crystal City, Missouri, for [fol. 655] each year. For the year 1928 our average cost at these two plants was .22657. It cost us at our Creighton plant, where we use the patented appliances, .10183 or a saving per foot of .12474, which is due entirely to the patents that we possess on this manufacturing process.

Q. At both Kokomo and Crystal City, if I understand, the quarter-inch glass which you took as a standard of comparison was manufactured by the old method of casting and rolling a sheet on the table, then annealing and then grinding and polishing. Is that correct?

A. That is correct.

Mr. O'Shea: I have an objection to all of this testimony.

The Master: Very well.

Q. Were those two plants at Kokomo and Crystal City efficient, first-class, commercial plants?

A. They were in as good a condition as could be made by this process. At Kokomo we spent on improvements in the years 1920 to 1923 $5,600,000 to bring this plant up to date. At Crystal City between the years 1925 and 1927 we made

an expenditure of $1,010,000 to put this plant in first-class condition.

Q. Why did you take quarter-inch glass for purposes of comparison instead of one-eighth-inch glass?

A. The works at Kokomo and Crystal City did not produce, during the years 1928, 1929 and 1930, one-eighth-inch glass, as this was all produced at Creighton.

Q. And taking the Creighton Works, where the new process and apparatus were in operation, state whether or not the cost of producing one-eighth and one-quarter-inch glass respectively were even and comparable.

A. The only difference in the cost between one-eighth and one-quarter at Creighton—in the year 1928, one-eighth-inch glass cost .095 labor and material cost; one-quarter-inch [fol. 656] cost .1006; or one-quarter-inch cost .011 more than one-eighth. In the year 1929, one-eighth-inch glass cost .095; one-quarter-inch glass cost .104; or one-quarter-inch glass cost .009 per foot more than one-eighth. The first five months of 1930, one-eighth-inch glass cost .103; one-quarter-inch cost .121; or one-quarter-inch glass cost .018 more than one-eighth-inch glass.

Q. That difference was largely due to difference in amount of raw material, wasn't it?

A. It is due to thickness in rough glass.

Q. So that in point of fact the comparison which you have made shows a difference which is less than if you had attempted to compare the manufacture of one-eighth-inch at Creighton with the manufacture of one-quarter-inch at either of the other plants. Isn't that true?

A. Yes, it is.

Mr. Christy: Of course the Master will understand that we will follow this proof up further with detailed proof in connection with our own defense.

Q. The first item on your statement of cost which was entered on the record this morning is entitled "Manufacturing and Administration." Without giving detailed figures, please give the different departments or operations included in that title.

A. Casting department, grinding and polishing department, wareroom department, order cutting department, depreciation and obsolescence, factory general expense, and general office expense.

By Mr. Smith:

Q. Mr. McHenry, does the Pittsburgh Plate Glass Company keep its books of account in a conservative manner?

A. Very conservative, I would say.

[fol. 657] Q. Now, as I understand the item on this statement that we are considering here that you have offered today, entitled "Manufacturing and Administration," that includes certain cutting losses, does it?

A. It does.

Q. I am laying that aside in what I am asking you about, and I am directing your attention to the item on that statement which is entitled "Loss Cutting." Are the figures which are shown in this statement opposite that item produced from actual figures shown on the books of account of the company?

A. They are produced from our actual sales records.

Q. You have records showing the number of feet of these fragments or small pieces of glass that are developed in cutting out pieces that you are making for customers?

A. Yes.

Q. And your books also show the price that you receive in selling those fragmentary pieces?

A. They do. They are billed the same as any other glass.

Q. As I understood your testimony, you said that the reason this charge was set up in this statement against the Duplate sales was that the Duplate Corporation ordered from your company pieces of glass in sizes for windshields and other body lights which were smaller than your ordinary sales of glass—smaller in size, I mean. Is that correct?

A. That is true.

Q. And I understood you to say that in the cutting of these smaller pieces of glass for Duplate you made an unusual amount of these fragments left over in the cutting process, as compared with the cutting that you would do for the ordinary customer. Is that true?

A. That is true.

[fol. 658] Q. And is that why you have set up this "Loss Cutting" on this statement, which for 1928 is .01548?

A. That is exactly the reason.

Q. Now, I think you testified that your average sales of glass for 1928 were at price of .3512. That is, 35 cents and a fraction per square foot.

A. That is the average price of all sales of thin plate for the year 1928.

Q. Just in that connection, so we can make the comparison, what was the average price of the sales in that year of these fragments of glass which were made in your cutting operation? I mean now not only for Duplate but for everybody.

A. .20644.

Q. So, leaving out the fractions, there was a difference of almost 15 cents a square foot, representing the amount which you received less for the fragmentary glass than for the ordinary glass?

A. Yes, sir. It would be still greater than that because in the average sales for the year of 35 cents the small pieces are included in that.

Q. So as they are sold at a smaller figure, that would make even a greater difference?

A. Yes.

Q. And in determining whether your fragments of glass were sold at a loss, you counted as part of the cost all of the items on this statement we are discussing, beginning with "Manufacturing and Administration" and going down the column to include "Federal Income Tax"?

A. Yes, sir.

Q. Now, you stated that you took the sales of the small glass, which I assume means what I have been describing shortly as the fragmentary glass, pieces running from one foot to two feet eight inches, and also strips. Is that right?

A. That is correct.

[fol. 659] Q. Why did you base any comparison by the use of the sizes one foot to two feet eight inches and what you call the strip glass. Why did you speak of those?

A. Because they are the small, undesirable sizes.

Q. And how did you make the comparison so as to produce this figure of "Loss Cutting, .01548"? Did you use the figures for these sizes we have just described a moment ago?

A. Just these two sizes mentioned, yes.

Q. And how did you determine from your books this figure .01548 as applicable to the Duplate Corporation? Did you apply it to the glass sold to that corporation, or how did you make the application?

A. The amount of feetage and money included under 1 to 2 feet 8 is sales to outside corporations other than Duplate. No sales to Duplate are included in that amount.

Q. They are not included?

A. They are not included in this amount.

Q. Well, I am not clear on how you got the basis for the amount you set up here as against Duplate.

A. On the statement as filed. That is, the cost of all one-eighth-inch glass, including the loss cutting. To determine the cost of glass sold to Duplate, we would say for 1928 .34432, which would assess them only with their proportion of the loss cutting.

Q. So you figured your loss on the sale of this fragmentary glass at an average of .01548?

A. That is our loss for 1928 per foot.

Q. And since you figured it on a per foot basis, then it readily can be applied to actual sales in feet made to the Duplate Corporation?

A. Yes, sir.

Q. I mean there is no difference between that item and any other items making up your cost of 1928 of .34432?

[fol. 660] A. They are all the same.

Q. All made on the foot basis of the cost of making one-eighth-inch plate glass at the Creighton plant in 1928?

A. Yes, sir.

Redirect examination.

By Mr. O'Shea:

Q. Mr. McHenry, is it not a fact that this bracket of from one foot to two feet eight inches is the standard bracket in the glass industry?

A. It is. It is the first bracket.

Q. And is considered as a standard size in the industry?

A. Yes, sir.

Q. Would you then, in view of that fact, call glass of that size a fragmentary size?

A. It is a small, undesirable size.

Q. But would you call it a fragmentary size?

A. A piece of glass one foot square isn't very large.

Q. Well, you haven't answered my question. Won't you please state whether you, in view of your experience in this industry and in view of the fact that the industry adver-

tises that as a standard bracket, would you therefore designate it as a fragmentary size?

A. It is a standard size.

Q. Now, this so-called "Loss Cutting." You say that the basis of that, as I understand it, is taken from your sales record. Is that correct?

A. It is; tabulation of the sales invoices.

Q. But that sales record, of course, did not compute any loss on those sales?

A. It did not, except that the glass sold at the sale price is included in our total sales. The loss is therefore lost in the year's operation as to its identity.

[fol. 661] Q. But this sales record didn't specify a loss, did it?

A. No, indeed.

Q. Nor is there any other record in the Pittsburgh Plate Glass Company's accounting record that specifies particularly any loss of this nature?

A. We do not allocate losses to any size or bracket of glass.

Q. Now, did you originate this formula or method of computing this so-called "Loss Cutting" that appears on this statement?

A. I did.

Q. You did?

A. I did.

Q. Your position in the Pittsburgh Plate Glass Company, as I understand it, is in the accounting department—in charge of the accounting department?

A. I am not in charge of the accounting department. That is under the controller—Mr. M. C. Spahr.

Q. You don't consider yourself as a glass manufacturing expert, do you?

A. I have only had ten years' experience.

Q. In the accounting department?

A. Yes.

Q. But you have had no experience, have you, in the production department?

A. I have had the experience of formulating the accounting instructions for the plate glass and various other factories in our company.

Q. Well, your whole experience in the glass industry has been only with the Pittsburgh Plate Glass Company?

A. In the plate glass industry it has, although I have audited several other glass concerns. For instance, bottle works—concerns making glass bottles.

Q. Well, those glass bottles are made by different apparatuses and different processes than are used in the plate glass industry?

[fol. 662] A. Entirely different.

Q. So your whole experience, so far as plate glass is concerned, has been with the Pittsburgh Plate Glass Company?

A. That is right.

Mr. O'Shea: Plaintiff rests, with a reservation, as I stated this morning, that I intend to put in, by way of brief or otherwise, a calculation which has to be made on these records.

Mr. Christy: We submit to the Master that a general reservation like that just above stated is not satisfactory. The defendant is entitled as a matter of right to a specific statement from the plaintiff as to what sum it seeks to recover by way of profits on this accounting and how that sum is computed. Defendant cannot adequately answer a case which is not stated and which, it is said with all respect, is subject to change and modification according to future exigencies. Defendant cannot anticipate a hazy and uncertain basis of claim and should not be required to do so. It is therefore submitted to the Master that it is entitled to the statement asked for before proceeding with its proof.

The Master: Mr. O'Shea, have you any statement to make in view of Mr. Christy's statement?

Mr. O'Shea: I have no statement to make. As I understand the law of accounting. The issues are raised by an account stated that is brought in by the accounting party and the exceptions of the other party thereto, plus whatever the Master may find in the testimony to justify his conclusions under the law. Those are the issues. It seems to me the issues in this case are much more clearly delin-

[fol. 663] eated than most accountings I have ever had any dealings with. If there is any feeling on the part of the defendant that they are entitled to anything more specific by way of stating I have closed my case than I have said, if they will put the words in my mouth, I may use them. I can't see how I may be more specific than I have been.

Mr. Christy: To make matters a little more specific, I will ask our opponents whether they still propose to rely upon Plaintiff's Exhibits Nos. 9, 9-A and 10, and the testimony of the Witness Sharpe through whom those exhibits were produced?

Mr. O'Shea: In answer to counsel's question, counsel for the plaintiff states that he most emphatically intends to rely upon the Exhibits 9, 9-A and 10 which are in this case, as well as all other exhibits that are in this case, and also intends to rely upon the testimony of Mr. Sharpe and all the other testimony in the case. He further intends to recompute the Exhibits 9, 9-A and 10, applying to those exhibits the cost of glass used by Pittsburgh Plate Glass Company, as shown by their own statements in this case.

Mr. Christy: That is my point, Mr. Master. We are entitled to that recomputation now.

Mr. O'Shea: It is all in the testimony there. It is merely a matter of computation.

Mr. Christy: No, it is not.

(Discussion off the record.)

Mr. O'Shea: If I am now asked what I shall claim as the cost of glass used by the Pittsburgh Plate Glass Company in the manufacture of infringing sales, which I now designate and will refer to as Duplate, I shall claim that as a [fol. 664] matter of law the Master must use the figures appearing on the "Statement of Cost of Thin Polished Plate Glass for the Years 1928, 1929 and 1st Five Months of 1930" as follows: Manufacturing and Administration, year 1928, .15590; plus "Interest on Investment 6%," .02553; making a total of .18143. For the year 1929, the items entitled "Manufacturing and Administration," .15637; plus the item entitled "Interest on Investment 6%," .02021; making a total of .17658. For the first five months of 1930, the items entitled "Manufacturing and Administration," .18569; plus the item entitled "Interest on Investment 6%," .03482; making a total of .22051.

I respectfully submit that all of that statement I have just made is indicated by the accounts as filed and the exceptions which have been filed thereto.

Mr. Christy: Except as corrected by the last above statement, does the plaintiff accept the account originally filed by the defendant in this case?

Mr. O'Shea: I most emphatically do not accept the account as originally filed here.

Mr. Christy: Does the plaintiff still contend that the defendant is not entitled to credit as part of its cost of manufacture the value of the difference, or any part of the difference, between the glass actually purchased and delivered to the factory of the Duplate Corporation and the amount of glass actually embodied in infringing sales of Duplate?

Mr. O'Shea: Except as already stated, the plaintiff's counsel refuses to be further cross-examined on this matter. [fol. 665] Mr. Christy: I submit to the Master I am entitled to an answer to that question.

(Discussion off the record.)

Mr. Christy: In view of the above statements by plaintiff's counsel, defendant's counsel states now that he anticipates that he will be driven ultimately to make what he believes will be well grounded objections to testimony which may hereafter be offered by the plaintiff in rebuttal, whether or not such objections may be classed as purely technical. He regrets to make this statement at this time but sees no alternative to doing so.

The Master: Defendant will proceed with its case.

Mr. Christy: Defendant excepts to the ruling of the Master and gives notice that he will proceed as early tomorrow morning as he can obtain the presence of the witnesses, and for that purpose asks for an adjournment until eleven o'clock A. M.

(Adjournment taken until Thursday, September 22, 1932, at 11 o'clock A. M.)

Pittsburgh, Pennsylvania,
Thursday, September 22, 1932.

Met pursuant to adjournment.

Present: Master and counsel as before.

(At request of defendant's counsel, adjournment was taken to Tuesday, October 4, 1932.)

[fol. 666] Pittsburgh, Pennsylvania,
Tuesday, October 4, 1932.

Met pursuant to adjournment.

Present: Master and counsel as before.

Mr. Smith: Mr. O'Shea, we understand that the plaintiff has gone out of business and is in process of liquidation. Will you concede that to be the fact or do we have to prove that?

Mr. O'Shea: That is not the fact.

Mr. Smith: If the Master please, we desire to call a witness to establish that fact in a preliminary way, preliminary to an application that we intend to make to the Master.

Mr. O'Shea: I don't see the materiality of it.

The Master: We will hear it, Mr. O'Shea, subject to your *sub*jection.

C. L. McHenry, a witness produced on behalf of the defendants, having been previously duly sworn, testified as follows:

Direct examination.

By Mr. Smith:

Q. Mr. McHenry, do you know whether or not the plaintiff in this case has gone out of business?

Mr. O'Shea: Objected to on the ground of being immaterial and irrelevant; also on the ground no basis is laid for this witness's knowledge of any such fact.

[fol. 667] The Master: We will hear his answer subject to your objection.

A. Last year.

Q. 1931?

A. Yes, 1931. The assets were sold to Libby-Owens-Ford Glass Company. I was sent to Clifton to check over the inventory of supplies. Through this agreement we were to buy these supplies from Libby-Owens-Ford.

Q. When you say "we" whom do you mean?

A. The Pittsburgh Plate Glass Company. So that the plant has not operated since that time.

Q. And did the Libby-Owens-Ford acquire all of the assets of the plaintiff in this case except its rights in this suit we are trying?

A. That is my understanding.

Q. Did you discuss with Mr. Caulfield the fact the Triplex Company was out of business?

A. Yes.

Q. And was he present when you were looking over these assets—making an inventory of them?

A. Yes, sir; he was.

Q. The factory is closed?

A. Has been closed since they last operated prior to Libby-Owens-Ford taking it over.

Mr. O'Shea: I wish to renew my objection on the grounds stated to the testimony of this witness, and now move to strike it out.

The Master: We deny the motion and note you an exception.

Cross-examination.

By Mr. O'Shea:

Q. Do I understand that you simply are assuming from some conversations that you have had that all of the assets of this company have been sold?

[fol. 668] Mr. Smith: The witness didn't say all of the assets had been sold. He expressly excepted this patent suit. We are not claiming that was sold.

A. All of the assets were removed. The Triplex Company retained some which were removed or sold which the Libby-Owens would not take.

Q. (Question read.)

A. I did not read the contract but from actual observation the assets have been sold with the exception of the material that Libby-Owens-Ford would not take; for instance, certain glass such as bullet proof and defective glass. To my knowledge all the other property was included in the contract.

Q. To your knowledge?

A. Yes, sir.

Q. And what do you base that knowledge on?

A. The reading of a portion of the contract, or an abstract of a portion of the contract.

Q. You only read a portion of it or an abstract of a portion of it?

A. Yes.

Q. Can you state today as to whether this plaintiff has no assets at all?

A. They have office equipment.

Q. Do you know whether they have got any cash?

Mr. Smith: I am not claiming they sold their cash; that wouldn't be a sale. When I stated "assets" I took in physical assets, such as plant, equipment, supplies—not cash and accounts receivable.

Q. Do I understand that you purchased the plant and equipment which did belong to the Triplex Safety Glass Company from the Libby-Owens Company?

A. That I cannot answer.

Q. You don't know whether you purchased the plant and equipment which previously belonged to the Triplex Safety Glass Company or not?

[fol. 669] A. No.

Q. Do you know whether you purchased the plant?

A. The plant was included in this set-up.

Q. What set-up?

A. For the purchase by Libby-Owens.

Q. And did you buy it from Libby-Owens.

A. No.

Q. Did the Pittsburgh Plate Glass buy from Libby-Owens?

A. This is now carried in an account called "Triplex Company", which handles the dissolution or sale of all of these assets.

Q. Well, is the Pittsburgh Plate Glass Company interested in that Triplex Company?

A. Yes, I think they are.

Q. You only think they are? Don't you know that they are?

A. I can't give you any figures that would say we made purchases.

Q. Well, did you buy any of the stock do you know?

A. We have no Libby-Owens stock.

Q. I am talking about this Triplex Corporation into which entity the assets of the plant and equipment of the old Triplex Safety Glass Company went.

A. I do not recall any entries on the Triplex books. They are kept by another individual and I am not familiar with them.

Q. Do you recall whether there is an entry on the Pittsburgh Plate Glass Company's books as to ownership of stock in the Triplex Company?

A. No, sir.

Q. There is no such entry?

A. I recall none.

Q. Do I understand then, so far as you know from accounts of Pittsburgh Plate Glass Company, Pittsburgh Plate Glass Company has no interest in this Triplex Corporation you speak of?

[fol. 670] A. I would not say they have no interest. They must have some interest or we would not have been called upon to go down and check the inventory.

Q. You think they have some interest?

A. Yes, sir.

Q. You don't know what that interest is?

A. I do not.

Q. Are you able to state today from your own knowledge that the Triplex Safety Glass Company is not a going concern?

A. It is not a going concern, as stated before, as when it was organized.

Q. What do you base that on—your knowledge? Please tell us just what knowledge you base the fact you state on, namely, that the Triplex Safety Glass Company is not a going concern.

A. You refer to the Triplex Company of North America?

Q. Triplex Safety Glass Company of North America.

A. It is not a going concern in the laminated glass business.

Q. You mean by that it is not now selling laminated glass?

A. Not to my knowledge.

Q. Assuming that fact, does it necessarily follow it is not a going concern, do you know?

A. It is not a going concern selling laminated glass. It may be handling cups or some other commodities.

Redirect examination.

By Mr. Smith:

Q. This factory you say was taken over. Was that the factory where this laminated glass was made?

A. It was.

[fol. 671] Q. And the inventory of equipment and supplies and so forth that was taken over. Was that at that plant?

A. It was.

Q. Were you at the plant yourself?

A. I was.

Q. You discussed this question with Mr. Caulfield who is present here—the matter of taking over these inventories?

A. Yes.

MOTION FOR ORDER REQUIRING PLAINTIFF TO PRODUCE CERTAIN BOOKS AND RECORDS

Mr. Smith: We are ready to call one or more witnesses this morning but, before doing so, make the following application to the Master: In the plaintiff's case, plaintiff has offered evidence which it claims shows that the plaintiff was forced to reduce its prices; also that it lost sales of laminated glass which the plaintiff would have made except for the competition of the defendant. Plaintiff also produced evidence to the effect that the Johnston Glass Company took a license under plaintiff's patent. Plaintiff also offered in evidence an agreement dated October 17, 1927, between plaintiff and the Ford Motor Company under which the latter was to pay plaintiff for laminated glass at the cost of production as therein set forth, plus 20 cents for each Ford windshield and a proportionate amount as therein set forth for glass other than windshields. Plaintiff called one Frank L. Dyer and one Francis L. O. Wadsworth as expert witnesses on the subject of a reasonable royalty and propounded hypothetical questions to these witnesses in which it is stated, among other things, that the laminated glass described in the Benedictus patent was largely used in the automobile trade; that there was by the inherent merit of such glass created a rapid and broadening market

[fol. 672] so that the sales of Benedictus non-shatterable glass in the year 1928 amounted to 3,100,000 square feet and that in the year 1929 it amounted to 8,362,000 square feet. In the hypothetical question put to Frank L. Dyer the above-mentioned Ford contract dated October 17, 1927, is specifically mentioned. In answering this question, this witness based his answer upon the allegations contained in the hypothetical question and the witness particularly refers to his assumption that the Triplex Company, by means of advertising, "had created a very substantial demand for laminated glass" and that "the market therefore was an easy one because of this demand." This witness also refers to the value of the said Ford contract and in his answer the witness makes the following statement:

"Under ordinary conditions, a licensee taking a license under a patent, generally receives it from the patent owner, either the inventor or some holding company, and therefore the entire expense and risk of development is imposed upon the licensee. Here all this had ben done by the Triplex Company, and when the Duplate Company entered the field, practically all risk had been elminated and a substantial demand had been created. In other words, a license to the Duplate Company would have been practically an invitation on the part of the Triplex Company to divide the business of the company between them."

Further, in the hypothetical question put by plaintiff to Francis L. O. Wadsworth, in addition to the foregoing matters referred to as being included in the question, it is stated that the plaintiff received in the years 1927 and 1928 from the distributors and automobile and body manufac-[fol. 673] turers for optional equipment a price of $4.80 per square foot for plate laminated glass and $3.60 per square foot for sheet laminated glass until March, 1928, and thereafter $2.40 per square foot for sheet laminated glass and that such customers accepted such prices as fair and paid such prices and the hypothetical question further stated that the plaintiff established and maintained and received from automobile and body manufacturers for standard equipment a schedule of prices which is set forth in detail in the hypothetical question and that some automobile manufacturers accepted and paid such prices as fair prices and purchased laminated glass at such prices. The

witness Wadsworth based his answer upon the allegations contained in the hypothetical question.

In order that the facts in this case may be disclosed, we now respectfully request the Master to order the plaintiff either to produce before the Master or to permit defendants to examine its books and records for the years 1927, 1928, 1929, 1930, 1931 and 1932 with reference to the following matters:

(1) Plaintiff's costs of production of laminated glass, including the amount of all defective or rejected glass manufactured by plaintiff and costs arising in connection therewith;

(2) All losses incurred by and charges made against the plaintiff for defective laminated glass produced by it or returned to it or charged in any way to the plaintiff by the Ford Motor Company under the agreement of October 17, 1927, hereinbefore mentioned, and by the distributors and jobbers and automobile and body manufacturers referred to in the hypothetical question or otherwise;

[fol. 674] (3) The amounts of laminated glass made by plaintiff and the amounts of all defective or rejected or returned laminated glass and the dates when same were proved to be defective or rejected or returned;

(4) The amounts of all royalties paid by the Johnston Glass Company and any other licensees under plaintiff's laminated glass patent.

Defendants offer to prove by the palintiff's books and records:

(a) That the laminated glass described in the Benedictus patent was not largely used in the automobile trade at the time referred to in the hypothetical question;

(b) That plaintiff had not created a substantial demand for laminated glass and that the market was not an easy one;

(c) That when the Duplate Company entered the field, instead of practically all risk having been eliminated and a substantial demand created, the exact contrary was the case and that it is not true that the license to the Duplate Company amounted practically to an invitation on the part

of the Triplex Company to divide the busines of the company between them;

(d) That the sales referred to for the years 1928 and 1929 were considerably less than the amounts stated in the hypothetical question and that these sales were, in effect, substantially changed and reduced by allowances which plaintiff was obliged to make by reason of defective, rejected or returned glass;

(e) That the amount of glass, if any, sold by the plaintiff in the years 1927 and 1928 or thereafter, whether for [fol. 675] optional or standard equipment at the alleged prices set forth in the hypothetical question, was inconsiderable and that much defective glass produced by plaintiff was rejected or returned or otherwise charged against plaintiff, thus greatly reducing the alleged price;

(f) That the alleged advertising value of the Ford Motor Company contract to the plaintiff, as well as its value from the standpoint of profits, was greatly reduced by reason of large amounts of defective glass made by the plaintiff and rejected or returned by the Ford Motor Company and by various customers, representatives and jobbers of that company and charged against the plaintiff by the said company under the contract;

(g) That rejects of laminated glass in the factory of the plaintiff and returns of defective glass by the Ford Motor Company and other automobile manufacturers were charged against the plaintiff by these manufacturers and that plaintiff accepted and agreed to these charges in large amounts;

(h) That the above mentioned rejections, returns and charges against the plaintiff on account of laminated glass sold during the accounting period extended beyond that period and as late as the year 1932;

(i) That any royalties received by the plaintiff under its license with Johnston Glass Company and other licensees, if any, were inconsiderable in amount;

(j) That damage to the plaintiff arising out of its alleged loss of sales was inconsiderable in amount; and

[fol. 676] (k) That plaintiff and distributing stations owned or controlled by the plaintiff lost large sums of

money during the accounting period in attempting to sell laminated glass to the general public.

Defendants desire to examine the books and records by accountants employed by them, covering all details in connection with the matters above mentioned, and to offer proof of the facts thus elicited and to require the production of the books and records themselves if any question is raised concerning the contents thereof.

The Master: Mr. O'Shea, what have you to say in answer to this proposal?

Mr. O'Shea: Plaintiff most strenuously objects to the examination of any of its books. It asserts that the Master, in its opinion, has no power to compel the plaintiff to submit to an examination of its books. Further, even if the defendant did have an examination of its books for the purposes stated in the argument of counsel that has just been put on the record, all of the testimony would be immaterial and irrelevant and incompetent. The issue here is not whether the plaintiff made any profits or made any losses. The issue is whether the defendant made profits or losses, and all of the issues in that question which are now raised by the testimony, the accounts and the exhibits are questions of law and no amount of testimony, whether competent or relevant or material, that could be gleaned from the books of the plaintiff would change that question of law. With respect to the application in so far as it applies to the hypothetical questions that were propounded to plaintiff's expert witnesses on the question of reasonable royalty; if [fol. 677] those hypothetical questions are not based upon the facts that the plaintiff has proved in this case, then it is going to be just too bad for the plaintiff. So in order not to extend this record, the plaintiff simply states that it objects to the application now made by the defendant.

(Discussion off the record.)

The Master: The defendant will proceed with its case without the waiving of any rights with respect to having produced the books and records of the plaintiff corporation under the application already made.

PHILIP F. DATZ, a witness produced on behalf of the defendants, having been previously duly sworn, testified as follows:

Direct examination.

By Mr. Christy:

Q. You have already given some testimony in this case on behalf of the plaintiff, have you not?

A. Yes, sir.

Q. I have asked you to prepare and produce a tabulation showing the operating losses suffered by the Duplate Corporation and its predecessor during the accounting period, particularly in respect to polished plate glass, both directly and as made up into laminated glass. Have you done so?

A. Yes, sir.

Q. Will you please produce your tabulation?

A. (Witness does so.)

Mr. Christy: The tabulation produced by the witness is offered in evidence as Defendants' Exhibit "O."

[fol. 678] Q. Now, Mr. Datz, the first sheet of this exhibit appears to be a recapitulation of the losses shown for individual months during the accounting period upon the sheets which follow the first sheet. Is that correct?

A. Yes, sir.

Q. Now, there are two columns on this recapitulation sheet, one headed "Polished Plate Feet" and the other headed "Duplate Feet". What is included in these respective columns?

A. In the first column headed "Polished Plate Feet" it represents the loss as shown in polished plate feet on the Form "J" for the accounting period.

Q. And the other column?

A. The second column, headed "Duplate Feet", represents a loss as shown on the Form "J" sustained in all departments following the cutting department.

Q. And that includes glass losses?

A. Yes, sir.

Q. So that in order to determine the feetage of plate glass included in the second column, headed "Duplate Feet", you must multiply the figures in that column by two. Is that correct?

A. That is correct.

Q. These are all losses of the Duplate Corporation and its predecessor, the Pittsburgh Safety Glass Company?

A. Yes, sir.

Q. So that, if I understand this correctly, it shows a loss of 677,401 square feet of plate glass in single sheets and 1,041,284 square feet of plate glass in Duplate, representing 2,082,569 square feet of single sheets of plate glass. Is that correct?

A. That is right.

Q. Now, in the third column, under the head of "Amount", what does that represent?

[fol. 679] A. This represents under the heading of "Amount" the value of the losses as shown on the Form "J."

Q. What do you mean by "value" there?

A. This value represents the material and labor consumed in the manufacture of the product lost in operation.

Q. Now, passing the early months, go to June, 1928 of this exhibit. You show first a loss of 117 plates of polished plate glass, amounting to 468 feet, which you have priced at 33 cents plus per square foot. Is that correct?

A. That is correct.

Q. And that means plate glass in the condition in which it was received?

A. Yes, sir.

Q. Now, going down a step, under "Assembly Department" you show two figures totaling 144 square feet of Duplate, priced at 66 cents plus per square foot. Is that correct?

A. That is correct.

Q. And what was the nature of that loss?

A. You mean the price?

Q. No, the glass loss.

A. That consisted of an operating shrinkage in the assembly department.

Q. And you have priced that at double the cost of the plain plate glass sheets—that is, the cost of two sheets instead of one. Is that correct?

A. Yes, sir.

Q. Your figure of 66.954 cents seems to be slightly more than double the figure just above of 33.358 cents. What is the reason for that difference?

A. The price 33.358 represents the value of the glass as it is taken out of the polished plate stock. The price 66.954

represents the value of two pieces of glass taken out of [fol. 680] polished plate stock after the loss in polished plate stock breakage has been deducted.

Q. Now, coming to "Pressing Department" in this same month of June, 1928, you show a total of 9363 square feet of Duplate loss, to which you give a value of $1.11 plus per square foot. What does that value represent?

A. This value represents the cost of the material and labor in the product as it leaves the assembly department, which is the previous department.

Q. That is, this represents glass delivered to the pressing department and there rejected. Is that correct?

A. That is correct.

Q. Then your next department is the edging department, where you show a loss of 1792 square feet of Duplate, priced at $1.66 plus per square foot. What does that value represent?

A. This value 1.66170 per square foot represents the cost of material and labor as the product leaves the pressing department.

Q. And which was received in the edging department and there rejected. Is that correct?

A. Yes, sir.

Q. Now, next below, you have in the column headed "Amount" sums for edgework. What does that mean?

A. These amounts shown under the heading "Amount" represent the material, labor and overhead of the edgework on the rejects in the edging department.

Q. That, of course, was additional to the value of the Duplate as received in the edging department. Is that right?

A. Yes, sir.

Q. So that your total operating loss or shrinkage in the month of June in glass amounted to 468 feet of single sheets [fol. 681] and 11,299 feet of Duplate (consisting of two glass sheets). Is that correct?

A. That is correct.

Q. So as to make it entirely clear, your glass loss in June was 468 square feet plus double 11,299 square feet or 22,598 square feet? Is that correct?

A. That is correct.

Q. Now, on this June, 1928 sheet you also have inventories listed, the first item of which was polished plate stock,

2176 feet. Was this a physical inventory or a book inventory?

A. This inventory, 2176 feet of polished plate stock, was a book inventory.

Q. Not a physical inventory?

A. Not a physical inventory.

Q. Now, the other items of these inventories—assembled glass, pressed glass, edging department glass, and finished stock—were they physical inventories or book inventories?

A. They were physical inventories.

Q. I believe you stated heretofore in your former testimony that for some little time physical inventories of your polished plate stock were not taken. When did you commence the taking of physical inventories of your polished plate stock?

A. The physical inventory of polished plate stock was taken at the end of September, 1928.

Q. And monthly thereafter?

A. And monthly thereafter.

Q. Now, let us turn to your sheets for September, 1928, as to which you were examined in some detail in your former testimony. Attention was mainly directed to the plate glass loss of 92,038 feet recorded for that month. I understand that the first sheet of this exhibit which has to do with September, 1928 is in explanation of that recorded loss. Is that correct?

A. That is correct.

[fol. 682] Q. Just to make it entirely clear, will you explain the figures shown on that sheet which result in that loss figure of 92,038 square feet?

A. The ledger account, polished plate, as shown on the first sheet of the exhibit, represents the inventory of glass as shown on the books September 1, 1928, is 95,532 feet. The amount of glass received from the Pittsburgh Plate Glass Company during the month of September is 809,178 feet. The amount of glass received from reclaiming operation, 41,856 feet, making a total of 946,566 feet, from which we deduct an inventory of 131,600 square feet on hand September 30, 1928, which is a physical inventory; showing glass transferred from polished plate stock during September, amounting to 814,966 feet. Deducting the glass used in the assembly department, as shown on the Form "J," totaling 722,928 feet, shows a balance of 92,038 feet

polished plate loss in September as shown on the Form "J."

Q. That was not all polished plate loss in September? This represents the first month in which you checked your book inventory against an actual physical inventory. Is that not correct?

A. Yes, sir; that is correct.

Q. And some of that 92,038 feet may have been lost any time before September? Is that correct?

A. That is correct.

Q. These figures are all taken from your regular records, are they?

A. Yes, sir.

Q. And you believe them to be correct?

A. Yes, sir.

Q. Now, please turn to your second sheet for September, 1928, and explain the items under the first heading, "Cutting Operation Loss" and the item under "Polished Plate Feet," 92,038 square feet.

[fol. 683] A. Under the heading "Cutting Operation Loss," showing polished plate feet loss 92,038 feet, you will find the following: Polished Plate Glass returned from the Assembly Department—actual size—103,795 feet.

Q. What does that mean?

A. That represents the glass which has been returned from the assembly department.

Q. Why?

A. Due to defective material.

Q. You mean returned as defective glass or defective product of the assembly?

A. Defective product of the assembly. From this amount we have salvaged 55,559 feet, allowing a loss in the glass returned from the assembly department totaling 48,236 square feet.

Q. That is in single sheets?

A. That is in single sheets.

Q. Proceed, please.

A. Glass broken in handling stock, 977 feet; loss cutting polished plate glass to order size, 13,090 feet.

Q. What does that mean?

A. It represents the loss sustained in the actual bracket size cut from the original polished plate furnished for this particular order.

Q. You mean it is only waste edges or do you mean glass that may have been broken in cutting, or both?

A. Both. The balance, 29,735 feet, represents an inventory adjustment of the polished plate glass account which heretofore had not been adjusted to a physical inventory.

Q. So that you have two loss figures there, totaling respectively 48,236 square feet of single sheets and 43,802 square feet of single sheets, making up the item 92,038 square feet. Is that correct?

A. That is correct.

[fol. 684] Q. And the shrinkage in the other departments is the same as you have already explained?

A. Yes, sir.

Q. Now, Mr. Datz, please turn to October. You and Mr. O'Shea had a great deal of difficulty about this item of 14,567 square feet of plate glass stock loss recorded in that month. You said that was all breakage and Mr. O'Shea asked if you got a bull in your stock room that month, and he subsequently asked another witness if you could have lost all that from breakage? Was it all breakage?

A. No, it was not all breakage.

Q. And the items under head of "Polished Plate Stock Loss" on your October, 1928, sheet show how these losses were incurred, do they?

A. Yes, sir.

Q. Will you please repeat as you did before just what these items mean?

A. Under the heading "Polished Plate Stock Loss" we show an item of 5629 square feet rejected by the assembly department as reported from October 1st to October 18th, and an item of 4000 feet of polished plate rejected by the assembly department, which is an estimate based on the previous eighteen days operation in the amount of glass rejected by the assembly department.

Q. That is, if I understand you, you only had those reports for the first eighteen days of October?

A. Yes, sir.

Q. Which amounted to 5629 square feet. Is that correct?

A. That is correct.

Q. And for the rest of the month you estimated a corresponding shrinkage at the same rate, which would amount to 4000 square feet. Is that correct?

A. That is correct.

Q. Please proceed.

[fol. 685] A. The item 2311 feet represents the shrinkage or loss in the assembly department.

Q. That is, in addition to the two items above. Is that correct?

A. That is correct, and the balance, 2627 feet, represents an inventory adjustment, physical inventory, taken at the end of October, 1928.

Q. What do these index letters "A," "B" and so forth mean on this sheet?

A. Where the index letters are shown in this report, "A," "B" and "C," it means that we have the original production records to substantiate the figures as shown on this report.

Q. Now, up above, at the top of the October statement, you have an item, "Polished Plate Cutting Loss reported," of 23,801 square feet of single sheets of plate glass. What is that?

A. This 23,801 square feet of polished plate feet represents the loss in the cutting department before the glass is delivered to the assembly department.

Q. And that as before, if I understand, includes both breakage in the cutting department and losses due to cutting down unnecessarily large plates. Is that right?

A. That is right.

Q. Now, let us return to this statement again and try to make things clear. The amounts, or what you call the values, which you give in price per square foot of duplate feet, first referring to the pressing department loss, means the cost per square foot expended upon the rejects at the time that they reached the pressing department. Is that right?

A. That is correct.

Q. And coming to the edging department, in like manner the value which you there give of $2.05 per square foot represents the actual expenditure upon the rejects in the edging department down to the time that they reached the [fol. 686] edging department. Is that right?

A. That is right.

Q. And the additional amounts under the heading "Edgework" represent work actually expended or material used in edging rejects in that month in the edging department. Is that correct?

A. That is correct.

Q. I will have occasion presently to point out some other mistakes in your first testimony in addition to this matter about the stock loss in October, 1928. I will ask you at this point what were the circumstances under which you were called to testify formerly, and how did it happen that you made those mistakes.

A. At the time the previous testimony was taken I was away from the Duplate Corporation for about seven months, during which time I did not review any of the records of the Duplate Corporation. I was employed at the Ford City plant of the Pittsburgh Plate Glass Company and was called by phone to Pittsburgh and came down and was placed upon the witness stand without any knowledge of what questions might be asked. Under these conditions my memory was kind of hazy and I became easily confused.

Q. Now, referring for a moment to glass salvaged or separated from Duplate rejects, how was that handled? I mean by that, Mr. Datz, how did that reappear in your accounts when it did reappear?

A. Any glass that might have been separated from the rejects was placed into the operation at the value at which it entered the operation in polished plate glass. In other words, it was placed into our polished plate stock and the operations credited for any glass that was recovered by separation.

Q. And then, if this glass was subsequently laminated and sold, you of course charged the account with what you got for it?

[fol. 687] A. That is correct.

Q. Now, in December of 1928 you show a stock loss of 118,222 square feet of single sheets of polished plate glass. Am I correct in understanding from your testimony that this represents glass separated, as stated by you just above, and afterward found to be useless for your purposes and therefore charged off in that particular month?

A. That is correct.

Q. Now, at what point in the Duplate factory did the glass become the property of that company?

A. You mean the polished plate glass coming in?

Q. Yes.

A. In what period?

Q. Well, when you were running the old factory.

A. At the time the glass was delivered into the cutting

department of the Duplate factory, which was then located in the wareroom of the Pittsburgh Plate Glass Company.

Q. And you were mistaken, were you not, where you said in your former testimony on page 92 that if the glass was broken in transit in a distance of approximately half a mile from the cutting room to the assembly department, it was replaced by the Pittsburgh Plate Glass Company?

A. That was an error.

Q. There seems to be one small mistake on page 89 of your former testimony where you said you were giving breakage for the two months of May and June, 1928. What you gave there was the breakage for those two months in 1929, wasn't it?

A. Yes, that should have been 1929 instead of 1928.

Q. Just to make a point clear, Mr. Datz, all through these statements where you have the index letters "A," "B," "C," "D," "E," "F," etc., they refer to what records? [fol. 688] A. To the original production records as used in compiling Form "J."

Q. Turn to October, 1928, please. You show there in red an inventory adjustment of 610 square feet of Duplate in the pressing department. What does that mean?

A. This 610 feet shown in red under the heading "Pressing Department Loss" is a credit to the loss reported by the production department. In other words, the pressing department in reporting their loss on the production records, have reported 610 feet more than what they should have reported.

Q. I will refer you for a moment to Plaintiff's Exhibit No. 10, which was produced by plaintiff's expert accountant, being a recapitulation of losses in both glass and pyralin. Leaving out of consideration for the present the recorded losses in pyralin, have you any criticism to make of this exhibit?

A. The total as shown on the exhibit of loss—grand total—2,179,682 feet, excluding the losses as shown under the heading "Pyralin Examination Department," consists of polished plate glass stock losses, plate glass cutting department losses, which are shown in single plate glass feetage; also, the assembly and pressing department, pressing department losses, carbital department, edging department losses, Duplate stock losses, which are shown here and incorporated on the Form "J" in Duplate feetage. In other

words, the total of these columns should have been multiplied by two to show the actual plate glass feetage loss.

Q. Now, look at the pyralin column on that Exhibit No. 10 for a moment. Have you anything to criticize in that column?

A. Under this heading, "Pyralin Examination Department" we have losses shown in both feet and sheets. The man who compiled this report evidently has included the [fol. 689] feet and sheets in the one total under the pyralin examination department loss and designated same as feet.

Q. There is one item on the sheet for August, 1928, in Defendants' Exhibit "O," under "Pressing Department Loss" entitled "Pressed glass rejected at Ford City." What does that mean?

A. The figure 11,053 feet, pressed glass rejected at Ford City, represents the glass laminated which was rejected at Ford City plant.

Q. Why did it go to Ford City?

A. Our edging department was quite limited at Creighton at the time and some of our glass had to be shipped to Ford City for edging.

Q. But it was Duplate that was manufactured at Creighton?

A. Yes, sir.

Q. Shipped to Ford City for edging and then shipped back again? Is that correct?

A. That is correct.

Q. Now, you said in your former testimony, I believe, that the plate glass which became a total loss to the Duplate Company and was charged off on its books as of no value was returned to the Pittsburgh Plate Glass Company and paid for as cullet. Is that correct?

A. That is correct.

Q. Have you a sheet there that will show your cullet sales to the Pittsburgh Plate Glass Company?

A. Yes, sir.

Mr. Christy: This sheet of defendant's cullet sales is offered in evidence and marked Defendant's Exhibit "P."

Q. And this sheet shows that the cullet which was returned by the Duplate Company to the Pittsburgh Plate Glass Company was paid for at the uniform rate of $8 per net ton. Is that correct?

[fol. 690] A. That is correct.

Q. Now, I asked you to prepare another exhibit showing the pyralin losses of the Duplate Corporation, so far as they appear on their books. Have you done that?

A. Yes, sir.

Mr. Christy: This sheet relating to pyralin losses is offered in evidence as Defendant's Exhibit "Q."

Q. Like your other exhibit, this exhibit of pyralin losses comprises on its first page a recapitulation and on the succeeding pages the losses in each month. Is that correct?

A. Yes, sir.

Q. I notice that this does not commence until May, 1929. Why was that?

A. Prior to May, 1929, the pyralin department was not shown on the Form "J." The material taken from the pyralin department was included as a raw material in the assembly department.

Q. So that on your Exhibit "O" the value which you gave to the losses in the pressing department and the edging department included pyralin which was actually in the Duplate which was lost in those departments?

A. That is correct.

Q. Now, what does this pyralin exhibit show?

A. This pyralin exhibit shows the number of feet or sheets of loss in the pyralin examination department, as shown on Form "J."

Q. What was this pyralin examination department? What did it do and what were these losses?

A. The pyralin examination department received the material shipped by the different manufacturers, stored the material, opened the cases and reinspected same and cut the pyralin preparatory to transfer to the assembly department.

[fol. 691] Q. What were these losses in this pyralin department? Did it include just loss in cutting the pyralin or what?

A. Any pyralin that might have been rejected in the assembly department before lamination was included in the pyralin loss as shown in the pyralin examination department.

Q. But no losses after the examination in the assembly department?

A. That is correct; no losses after.

Q. And I understand from this exhibit and from what you have already said that from May to September, 1929, this last pyralin account was kept in feet, and after that in sheets. Is that correct?

A. That is correct.

Q. And the values which you have given these pyralin losses have been computed accordingly. Is that correct?

A. That is correct.

(Adjournment was taken until 2 o'clock P. M.)

Afternoon Session

PHILIP F. DATZ, resumes the stand.

Direct examination (continued).

By Mr. Christy:

Q. Just one more question, Mr. Datz. I understand that all the glass included in this Exhibit "O" was one-eighth-inch polished plate glass. Is that correct?

A. That is correct.

Cross-examination.

By Mr. O'Shea:

Q. Mr. Datz, I am directing my questions now to Exhibit "O." Will you please state what price you figured [fol. 692] the value of the glass at on Exhibit "O"? That is to say, was it the billing price from Pittsburgh Plate Glass Company or the cost price of that glass to Pittsburgh Plate Glass Company?

A. It was at the average price paid to the Pittsburgh Plate Glass Company by the Duplate Corporation.

Q. As appears on the bills from Pittsburgh Plate Glass Company to Duplate Corporation?

A. That is right.

Q. And is not, therefore, the cost of that glass to Pittsburgh Plate Glass Company?

A. That is right.

Q. Now, on the first page of Exhibit "O" you have a summary of the feetage for the respective years at the bot-

tom of that page and the first item is "Unlaminated Glass Loss in Polished Plate Feetage," and for the year 1928 amounts to 286,120. Does that figure comprise the additions of all the figures on the following sheets listed under the heading "Pol. Plate Feet"?

A. Yes, sir.

Q. And that is true of the other two years, or the balance of the period of the accounting?

A. That is correct.

Q. Now, turn to the month of May, 1928, on Exhibit "O." I notice there the first item is marked "Pol. Plate Breakage-Assembly." Will you please explain that entry?

A. Do you mean as a whole for the two items of 30 feet —29-2 and 1 foot?

Q. Take the first—29 feet 2 inches.

A. That figure 29-2 represents the glass as reported by the production department that was broken in the assembly department before lamination.

Q. And does the next item, reading "Pol. Plate Breakage-Assembly" mean the same thing?

[fol. 693] A. Yes, sir.

Q. It is just in two items?

A. Yes.

Q. Are we to understand wherever any such breakage appears throughout the whole Exhibit "O" it will be marked "Breakage"?

A. It will be marked "Breakage."

Q. And if it is not marked as breakage, it will be something else than breakage?

A. That is right.

Q. Now, turning to the month of October, 1928, being a part of Exhibit "O," and directing your attention to the heading "Polished Plate Stock Loss" and the items under that heading, do I understand it correctly that this exhibit indicates that those items under that heading "Polished Plate Stock Loss;" the first of which reads, "Pol. Plate rejected by Assembly reported period 10/1 to 10/18/28" means that glass after getting into the assembly department and being assembled was there rejected for some cause or other and then, by reason of your accounting system, you took the credit for that rejection back into the cutting department? Is that a correct statement of what happened?

A. We wouldn't take credit for that back in the cutting department. We would charge that back into the polished plate stock, but it would eventually come down into the cutting department at a lower figure.

Q. Was it glass that had been partly processed into laminated glass?

A. No, it was prior to lamination.

Q. In other words, this glass had gotten into the assembly department and for some reason in the assembly department the glass was found defective. Is that it?

A. That is correct.

Q. Does the record indicated on this Exhibit "O" by the symbol letter "A" show why it was rejected?

[fol. 694] A. No, it does not.

Q. Is there any other record indicating why that glass was rejected?

A. No, there is not.

Q. Now, on that same month, October, 1928, being a part of Exhibit "O," there is a heading "Pressing Department Loss," and the first item there reads "Pressing Dept. Shrinkage Turn # 1." First, for purposes of the record, Turn # 1 means shift in the factory, I assume. Is that correct?

A. That is correct.

Q. Now, what does the shrinkage indicate or mean?

A. That represents the glass that is rejected in the pressing department after lamination but before being transferred into the edging department.

Q. In other words, am I to understand then that this particular item means that 34,127 feet of glass, single sheet glass as distinguished from Duplate glass, having been processed into laminated or duplate glass, was then rejected? Is that correct?

A. No, the 34,127 feet represents laminated feet which has been rejected.

Q. So that in reality there was twice that rejected?

A. Of polished plate?

Q. Of polished plate rejected. Is that correct?

A. That is correct.

Q. Am I correct then in understanding that wherever the word "shrinkage" appears it means what we have sometimes referred to in this record as a reject?

A. An operating reject.

Q. It means an operating reject?

A. That is correct.

Q. An operating reject is one that is a piece of laminated glass that has been rejected after some operations have been performed on it. Is that correct?

A. That is correct.

[fol. 695] Q. And those operations were designed to end up with laminated glass?

A. Finally.

Q. Now, that definition with respect to shrinkage is the same for all of the months that appear on this Exhibit "O," as I understand it?

A. Yes, sir.

Q. Now, turning to December, 1928, there is an item there referred to as stock loss and amounts to 118,222 feet. That, as I understand it from the description of it, represents twice that amount of polished plate glass that had fully been processed into laminated glass and for some reason or other then rejected and sent back to the polished plate stock room for an attempt at salvage or reclaiming it, and it was reclaimed or attempted to be reclaimed and then thereafter, at some period, it was discovered that that glass was not suitable for use in the further manufacture of laminated glass. Is that the process that it went through?

Mr. Smith: I think, Mr. O'Shea, that you misunderstand the facts in the first part of that question. I would like to have it read to the witness, please.

(Question read.)

A. No, it does not represent twice that amount. That represents half that amount in laminated glass.

Q. (Question again read.)

A. With the exception I have mentioned that that does not represent twice that amount, but half that amount in Duplate feet which had been separated through a reclaiming process and placed into polished stock to be used in the manufacture of Duplate if the sizes were at least possible to use.

Q. Was there ever a decision as to whether it was possible to use it?

A. Yes, there was a decision.

[fol. 696] Q. And what was that decision?

A. That it was not possible to use it.
Q. Then what happened to the glass?
A. Sold to Pittsburgh Plate Glass Company as cullet.

By Mr. Smith:

Q. What do you mean by cullet, Mr. Datz?
A. Cullet represents the broken glass that is used in the manufacture of plate glass as one of the raw materials.
Q. That is, it goes back into the melting furnace again?
A. Goes back into the melting furnace.

By Mr. O'Shea:

Q. Now, turn to January, 1929, and referring to the pressing department loss, after the symbol letter "G" you have an item called "Pressing Shrinkage—Block Size Duplate". You have already defined the term "Pressing Shrinkage". What does the "Block Size Duplate" indicate over and above the description of the other phrase?
A. Block size is the term known to cover the perfect rectangle.
Q. Well, does it add anything to the phrase "Pressing Shrinkage"?
A. No, sir.
Q. As indicating any reason for the reject or anything of that sort?
A. No, sir.
Q. And that is true of the item after the symbol letter "I", the phrase there used being "Saw Cutting Operation"?
A. That is correct.
Q. And the next item also, the phrase being "Small Autoclave"?
A. That is correct.
[fol. 697] Q. None of those phrases add anything to the pressing shrinkage?
A. No.
Q. Now, going back to September, 1928, on Exhibit "O", and referring to the second page of that month, I notice under the cutting operation loss an item marked "Inventory adjustment", 29735. Will you please explain just what that item means?
A. Prior to September 30, 1928, no physical inventory adjustment was made with the book inventory as shown in

the adjusted plate stock account, and when we come to reconcile it with the physical inventory at the end of that period we find that in addition to the glass already reported as being used 29,735 additional has been lost in the operation, or used in the operation.

Q. By that am I to understand it was your thought that it was actually used in the operation and that the reason for the necessity of the adjustment is that it had not been properly reported, or some such thing as that, in those back months?

A. In the prior back months it had not been reported as being used.

Q. If it had resulted in good laminated glass, of course there wouldn't have been a necessity for the adjustment?

A. No.

Q. In other words, it must have been lost some way in the process? If it had been good, it wouldn't have been lost?

A. That is correct.

Q. Now, in the next month, to-wit, October, 1928, as appearing on Exhibit "O", there is an inventory adjustment there under the polished plate stock loss which amounts to 2627. Will you please explain that item?

[fol. 698] A. The inventory adjustment of 2627 square feet represents the adjustment of the book inventory to the physical inventory for that period of October, 1928.

Q. That is the same as in the previous month, is it?

A. Yes.

Q. And represents improper reports possibly, or something of that sort, of the rejects?

A. That is correct.

Q. Referring now to Defendant's Exhibit "P". That exhibit indicates in pounds the total rejected glass breakage and all other losses in the Duplate operation, does it not?

A. Not all other losses in the Duplate operation. That represents the losses in polished plate glass alone.

Q. I meant that. It represents all losses in polished plate glass that were caused by breakage, shrinkage, rejects or otherwise?

A. That is correct.

Q. And if this pounds total here, amounting to 2,869,690,

were converted into feetage, it would check up with the feetage indicated in your Exhibit "O"?

A. No, sir, it would not.

Q. Well, what would be the differences?

A. Well, included in this tonnage figure here is polished plate glass ranging from one-eighth up to inch or inch and a quarter thick; also some window glass shrinkage that we might have then also thrown right in with the polished plate glass.

Q. Well, do I understand this 2,869,690 pounds of glass, as indicated on Defendant's Exhibit "P", includes glass that was sold or delivered to others than Duplate Corporation?

A. I don't quite understand you.

Q. I don't think I quite understood your previous answer. I thought it meant that this total of 2,869,690 pounds, as shown in Defendant's Exhibit "P", included all glass that [fol. 699] went back to Pittsburgh Plate Glass Company, both one-eighth inch glass, one-fourth inch glass and so forth and so on.

A. That is correct.

Q. Well, Duplate purchased no one-fourth inch glass, did they?

A. Yes, they did.

Q. Oh, those are for the specialties you mean?

A. That is correct.

Q. Well, that is what I had in mind. It includes then all of the rejected and broken glass that had been delivered to Duplate at a market price and was thereafter sent back to Pittsburgh Plate Glass Company and charged against Pittsburgh Plate Glass at the cullet rate?

A. That is correct.

Q. Am I not correct then in saying that this tonnage or pounds figure here ought to check up with the footage in Exhibit "O"?

A. No, sir, it will not.

Q. Is that because Exhibit "O" has no accounting of glass other than one-eighth inch glass?

A. That is correct.

Q. Well, why doesn't Exhibit "O" have the other glass? Is there some reason for not putting that in?

A. Exhibit "O" has been used to show the losses as shown in the Form "J".

Q. And Form "J" only covered one-eighth inch glass?

A. Form "J" covered one-eighth inch glass, which was Duplate.

Q. Didn't Form "J" cover bullet-proof and other specialties?

A. No, sir.

Q. Referring now to Defendant's Exhibit "Q." At what price did you compute the values that appear on that exhibit?

[fol. 700] A. The price used in computing the value of the loss as shown in feet was at the average price per foot of the pyralin taken from stock, and the price used in figuring the value of the loss as shown in sheets was computed at the average price per sheet taken from stock.

Q. That price is the price paid by Duplate to du Pont Viscoloid Company, as shown on the bills of du Pont Viscoloid Company?

A. It is the price as shown on the bills from the du Pont Viscoloid Company to the Duplate Corporation, plus any freight charges and handling charges in placing it in stock.

Q. Are you able to state from the records that you have before you just what is meant by the use of the word "shrinkage" on Form "J", which is applied, as I understand it, for the first time in the month of August, 1929?

A. Not under August, 1929, it doesn't appear here.

Q. It doesn't appear on your Exhibit "Q"?

A. No, sir.

Q. It does appear on Form "J" or Schedule "J", does it not?

A. It appears on Schedule "J" as shrinkage.

Q. Are you able from your records now to state what is meant by that word "shrinkage" when used in connection with pyralin there?

A. The term "shrinkage" there is intended to cover any loss deriving from the cutting of an original size sheet of the pyralin to a pattern used in the laminated product.

Q. Are you testifying from some record that you have now? Is there some record that represents that?

A. No, there is no record.

Q. That is just your recollection?

A. Just my recollection.

[fol. 701] Q. Might it not be something that was defective in the pyralin itself rather than the cutting to a smaller size?

A. It may be.

Q. This Defendant's Exhibit "O". That exhibit is based on your Form "J" or Schedule "J", is it not?

A. Yes, sir.

Q. As supported by such other production records as you had and as are indicated by the symbol letters that appear before the respective items?

A. That is correct.

Q. Which enables you to further break down the items shown on Form "J" or "Schedule "J"?

A. That is correct.

Q. And that same thing is true of Defendant's Exhibit "Q", relating to the pyralin?

A. Yes, sir.

Redirect examination.

By Mr. Christy:

Q. Referring to this Exhibit "P", the glass which you returned to the Pittsburgh Plate Glass Company as cullet was all broken single sheets, wasn't it?

A. Yes, sir.

Q. That is, this cullet didn't include any defective Duplate at all?

A. No, sir.

Q. That is, of course, unless you separated some Duplate and it included some of the separated sheets. Is that correct?

A. Yes, sir.

Q. And you didn't separate any Duplate, if I understand it, after the first of 1929?

A. If we did separate any of it, it would go into the records and be shown on the Form "J".

Q. Well, it isn't shown, is it, after December, 1928?

[fol. 702] A. I don't recall it unless I would go through them.

Q. Well, Mr. O'Shea has made it rather important. I wish you would find out whether you did separate any Duplate after December, 1928, or if you stopped, when you stopped.

A. If there was any separated, it is not shown in the records.

Q. Well, at all events, you wouldn't expect this cullet account, as converted into square feet, to check with your Exhibit "O", for example?

A. No, sir.

Q. Now, in reference to these monthly inventory adjustments, as an example was pointed out to you in October, 1928, have you had any experience in plant cost accounting outside of Duplate and Pittsburgh Plate Glass Company?

A. Yes, sir.

Q. I will ask you the general question whether in all cases of plant accounting, where physical inventories are taken, it is not necessary as a routine matter to adjust the book inventory to the actual physical inventory.

A. You mean that it is not necessary or is it necessary?

Q. It is necessary and it is done as a matter of routine everywhere?

A. Yes, sir.

Q. That is just as true of the plate glass factory as it is of the Duplate factory?

A. Yes, sir.

Q. Now, referring to this same month of October, 1928, your attention was called to the item of 5629 square feet "Polished Plate Rejected by Assembly", and, for that matter, to the other items under the same head. That all represents plate glass that had been cut in the cutting [fol. 703] department of the Duplate Corporation?

A. Yes, sir.

Q. And it was cut to sizes there for lamination?

A. That is correct.

Q. And it was your custom in the assembly department, as I understand, to inspect the glass when it came to the assembly department prior to assembly?

A. Yes, sir.

Q. And that means rejections at that point, does it—this 5629 square feet?

A. That is correct.

Q. Now, this shrinkage in the pressing department. What does that include?

A. You mean as to the nature of the rejects?

Q. Yes.

A. It may include any glass that is rejected for the following defects——

Q. You need not enumerate them all. Give it to me generally.

A. Broken, let-gos, white edges, dirt, burnt, dry spots, separation——

Q. It did include breakage?

A. Yes, sir, it did include breakage.

Q. And any other reasons for rejection that occurred in the pressing department?

A. That is correct.

Q. Now, in the month of January, 1929, and on through subsequent months as shown on your Exhibit "O", there were two plants running, called No. 1 Plant and No. 2 Plant, were there not?

A. Yes, sir.

Q. And referring to September, 1929, for example, we do not see that classification but only Turn No. 1 and Turn No. 2. Can you tell why that was?

A. In September, 1929, the plant No. 2 was the only plant that was operating.

[fol. 704] Q. In answer to one of Mr. O'Shea's questions you said that this Exhibit "O" was based upon your Form "J", together with what additional information you got from plant production records as indicated by the index numerals "A", "B", "C", etc. That is correct, is it?

A. That is correct.

Q. Now, please refer to September, 1928, and your explanation of this polished plate glass loss of 92038 feet. You have no index numerals on your Exhibit "O" in connection with these particular items, have you?

A. What sheet is that—8 or 9?

Q. Both sheets, so far as that particular matter is concerned.

A. As far as the polished plate is concerned, no, we don't show any letters or index.

Q. Then, how was it that you were able, as Mr. O'Shea put it, to break down this figure of 92,038 feet in September of 1928?

A. I must have had some record there to get it.

Q. Let me suggest, didn't you tell me when you prepared this Exhibit "O" that you had found your own original work sheets for that particular matter?

A. For the month of September, 1928.
Q. And that was true?
A. That is correct.

Recross-examination.

By Mr. O'Shea:

Q. I think you have already said this, Mr. Datz, but going back to this term "shrinkage" again which, as I understand, you have stated would be a reject caused by breakage, let-gos, and some fifty-two or nearly that amount of other causes. Do your records show how much of any par- [fol. 705] ticular amount of glass stated to be shrinkage, either operating shrinkage or otherwise, was breakage?
A. To be shown in feet, do you mean?
Q. Yes.
A. No, we do not have any feet.
Q. Where it said shrinkage, therefore, you are not able to determine from your records how much of that shrinkage was caused by the breaking of glass in handling and how much was caused by the other reject causes?
A. Not in feet.
Q. Well, could you show it in any other way?
A. We have it in plates.
Q. You have put it here in feet always?
A. That is correct. We have no records showing the number of feet rejected for the various defects in feet but we did have a record showing the defects and the classes of defects in plates.

Re-redirect examination.

By Mr. Smith:

Q. Mr. Datz, referring to Exhibit "O", I understand that that shows the plate glass rejected for various causes. You started to give a number of the kinds of defects and it was found not necessary to continue that. Am I right that the result of that is shown in Exhibit "F"?
A. That is the glass shown for different causes—why it was rejected.
Q. These rejects. Are they summed up in Exhibit "O"?
A. Yes, the total.

Q. And therefore anything that was in breakage would be in Exhibit "O", as well as other things?

A. That is correct.

Q. I think you misunderstood a question and said the breakage was not in Exhibit "O".

A. That was an error then.

[fol. 706] C. L. HENRY, recalled.

Direct examination.

By Mr. Christy:

Q. Mr. McHenry, I have asked you to make up a summarized account which will show what became of all of the one-eighth-inch polished plate glass purchased by Duplate Corporation from the Pittsburgh Plate Glass Company. Have you done so?

A. I have.

Q. And this I said was purchased from Pittsburgh Plate Glass Company. You didn't purchase any one-eighth-inch glass from anyone else?

A. No, sir.

Q. So this covers all of the one-eighth-inch polished plate glass that got into the hands of the Duplate Corporation during the accounting period?

A. Yes, sir.

Mr. Christy: I offer that in evidence as Defendant's Exhibit "R".

Q. And beneath this plate glass account on Exhibit "R" you also have a pyralin account, have you not?

A. Yes, sir.

Q. Of similar nature?

A. Yes, sir.

Q. Now, turning to the plate glass account, Exhibit "R", it appears that at the beginning of the accounting period somehow the Duplate Corporation had in its possession 74 square feet of glass.

A. That is right.

Q. And during the year 1928 the bills showed purchases of 3,600,212 square feet. Is that correct?

A. That is correct.

Q. And down below you have glass receiver but billed in subsequent period, which I understand to be in 1929, 109,344 square feet?

[fol. 707] A. That is correct.

Q. Why was that separated?

A. That was set up on the Duplate books as being received, although it was not billed until the year 1929. The Pittsburgh Plate Glass Company closes their billing on the 25th of the month, this glass being delivered to Duplate after the close of billing in December.

By Mr. Smith:

Q. That is, any glass delivered after the 25th of the month of December, 1928, would be billed by the Pittsburgh Plate Glass Company in January, 1929?

A. Yes.

By Mr. Christy:

Q. So that the Duplate Corporation actually received during the year 1928 in one-eighth-inch polished plate glass 3,600,212 square feet, plus 109,344 square feet. Is that correct?

A. Yes, sir.

Q. Now, in the next line you have "Received from Reclaiming Department", 235,675 square feet. What does that mean?

A. That is glass that was reclaimed and put back into operation.

Q. And, of course, was originally included in the total mentioned in my last question?

A. Yes, sir, it was.

Q. Now, with Mr. O'Shea's permission, I will ask you this question: As to this reclaimed glass, when it was originally found defective it was charged off the books at no value. Is that correct?

A. Returns were never carried on our records at a value until it was determined that they had a value by reclaiming.

Q. Possibly we can get it this way: tell me just exactly what you did on your books with any defective glass.

[fol. 708] A. It was charged off as a loss.

Q. Now go ahead. Suppose you reclaimed it; what happened?

A. As it was reclaimed, it was put back into operation at the cost of reclaiming.

Q. And then, if it was sold what you received for it, of course, went into your receipts. Is that correct?

A. Yes, sir.

Q. Now, coming to the other side of this account for the year 1928, you show your total shipments and the next item is "Samples", 2299 square feet. What does that mean?

A. That is glass used for advertising samples, which is treated here as a sale.

Q. Now, here next you have "Transferred to Other Departments". What does that mean?

A. That is one-eighth-inch glass transferred to the specialty department and experimental department.

Q. And finally you have the item "Operating Loss (Exhibit "O")", 1,521,684 square feet. Turning to Exhibit "O", I find the corresponding figure is 1,521,665 square feet. How is that difference explained?

A. The shrinkage as shown on Exhibit "O" includes all glass. This Exhibit "R" includes only one-eighth-inch glass.

Q. Let me suggest, Mr. McHenry. Mr. Datz has just testified that Exhibit "O" includes only one-eighth-inch glass. Isn't it the fact that this very small difference is due to the fact that one of you included in his addition fractions of square feet, while the other one did not?

A. Well, that would probably account for the difference. It is so very small.

Q. Now, what does that figure in red, "Difference in Count P. P. G. Co. & Duplate", 169 square feet, mean?

[fol. 709] A. That is the difference in counting between what was delivered to the Duplate by the Pittsburgh Plate Glass Company and what the employees of the Duplate Corporation made the count to be.

Q. Then, to sum it up, does this account for the year 1928, included in Exhibit "R", include all one-eighth-inch polished plate glass which the Duplate Company handled during that year?

A. It does.

Q. Now, turning to the year 1929 on this Exhibit "R", the account is exactly the same, except of course that you have set off against the receipts the 109,344 square feet which you say was actually received in 1928?

A. Yes, sir.

Q. And there the difference between Pittsburgh Plate Glass Company and Duplate in the matter of count, or, I may say, glass unaccounted for, amounts to 2845 square feet. Is that correct?

A. Yes, sir.

Q. Now, referring to the operating loss, comparing your figure on Exhibit "R" of 1,090,070 square feet with the recapitulation of Exhibit "O," we find just two feet difference. Is that correct?

A. Yes. That is due to dropping inches.

Q. And in 1929, if I understand your figures correctly, you added into the receipts 113,360 square feet which was delivered after December 25, 1929, and not billed until 1930.

A. That is correct.

Q. And your explanation of the samples and the glass transferred to other departments I assume is the same as in 1928?

A. It is the same.

Q. And the same explanations hold good for the year 1930, so far as it goes?

A. Yes, sir.

[fol. 710] Q. And this indicates that at the end of the accounting period on May 30, 1930, you had on hand, or Duplate Corporation had on hand 101,041 feet of one-eighth-inch plate glass. Is that correct?

A. That is correct, according to the actual and book inventory.

Q. And the cost of that, of course, has not been credited to the Duplate Corporation in this accounting?

A. No.

Q. Now, as to the pyralin account on Exhibit "R," you have stated the pyralin throughout in feet only; while Exhibit "Q" has it for one period in feet and for another period in sheets. Is that correct?

A. That is correct.

Q. So those two accounts are not so directly comparable as in the case of glass?

A. No.

Q. Then, am I correct in saying that this glass account on Exhibit "R" covers and accounts for all of the one-eighth-inch polished plate glass handled by the defendant during the accounting period, except only the very small differ-

ences in the line entitled "Difference in Count P. P. G. Co. & Duplate"?

A. That is correct.

Q. Now, I want to ask you a few questions relating to the figures which you gave at the last session in the item on page 908 of the typewritten record, "Allowance for Use of Patented Process and Apparatus." I believe you said these figures represent the difference in manufacturing cost per square foot between the manufacture of one-fourth-inch plate glass averaged at Kokomo and Crystal City and the cost of manufacture of one-fourth-inch plate glass at Creighton, during the years 1928, 1929 and 1930. Is that correct?

A. That is correct.

Q. What items did you include in the cost of manufacture at these plants, generally stated?

[fol. 711] A. The cost of raw materials, operating costs, including fuel, power, light and water, labor, and all other operating costs except depreciation and obsolescence.

Q. Now, as to the conditions at Kokomo and at Crystal City, on the one hand, and at Creighton on the other, state whether or not your examination of the accounts indicated a substantial variation. I mean, for instance, take labor. Were the rates paid at Kokomo and at Crystal City, on the one hand, and at Creighton on the other very different?

A. Common labor at Creighton was paid forty cents per hour. At Kokomo common labor was also paid forty cents an hour, and at Crystal City common labor was paid thirty-seven cents an hour. The other occupations of labor that are comparable, out of five items, they are all higher at Creighton plant than at Works 8 and 9 averaged.

Q. Works 8 and 9 being Kokomo and Crystal City. Is that right?

A. That is right.

Q. That is to say, in so far as Creighton paid higher labor rates, that would tend to reduce the difference between the cost at the plants compared? Is that correct?

A. It is.

Q. Now, as to fuel, light and power. I don't want you to give the details, but are the costs fairly well in line? Is there an abrupt or great difference between them?

A. Well, I will name the items and give you a total for the various items for the years 1928 and 1929.

Q. No, I don't want to go into details. What I want to get is, is there any abrupt difference which would make this comparison unfair—either way?

Mr. O'Shea: Are you asking for opinion or facts?

[fol. 712] Q. (Continued.) So far as your examination of the books is concerned.

Mr. O'Shea: So far as your question calls for a conclusion, I object to it on the ground it calls for a conclusion.

A. There is not.

Mr. O'Shea: Same objection to that.

The Master: We will allow the answer to remain subject to the objection.

Q. Now, if you had included depreciation and obsolescence in the figures which are compared, would the difference have been greater or less?

A. The difference would have been less than one cent in the favor of the Pittsburgh Plate Glass Company.

By Mr. Smith:

Q. You mean one cent per square foot of glass?

A. Yes.

By Mr. Christy:

Q. That is, it would have increased this difference which you gave of twelve cents or reduced the difference of twelve cents?

A. It would have increased.

Q. It would have been thirteen cents instead of twelve cents. Is that what you mean?

A. The difference would have been less than one cent increase.

Q. Yes, but I just want you to answer it my way. Suppose you had included obsolescence and depreciation. The figure of .12474 which you gave for the year 1928 would have been approximately thirteen cents plus. Is that correct?

A. It would have been increased four-tenths of one cent.

[fol. 713] Q. Why did you omit to include depreciation and obsolescence?

A. Well, we did not want it to appear before the Master that we were straining at every thread to increase our claim.

Q. Now, I have forgotten whether you stated or not, but just what operations did you include in this comparison? That is, you included the formation of the sheet and the grinding of the sheet. Anything else?

A. The polishing and the wareroom cutting.

Q. There is one question I omitted to ask you about the statement on Exhibit "R." Your figure of glass received during the year 1928, being 3,600,212 square feet plus 109,344 square feet, differs from the statement of feetage of glass used on sheet 3 of defendant's original account, which is 3,722,601 square feet. What have you to say as to this difference?

A. You have used in your question the receipts; whereas, we show on Exhibit "R" used 3,700,031 feet.

Q. Well, at all events, whatever these differences may be, what you have shown on Exhibit "R" you have personally taken from the records and you know them to be correct?

A. We have, and this has been proven out with the inventories. Now, the Exhibit "R" shows the one-eighth-inch glass used only; whereas, on defendant's original statement all glass was included as being used, which would include any sheet or heavy polished plate used in laminating bullet proof. However, we found in trying to prove these figures up that there was a slight difference even yet between the actual used, as shown on Exhibit "R," and including the sheet glass and other glasses that might be used, as compared with that filed on the original statement. When the original statement was prepared this work was done at the factory at Creighton under the supervision of Mr. H. C. [fol. 714] Terbush who was then chief accountant. Mr. Terbush has since left the employ of the company and we cannot locate his work sheets to determine just how he arrived at the figure given to me when filing the original statement. Therefore, the original statement is out the difference between what is shown on Exhibit "R," adding thereto the sheet glass, heavy polished plate glass and thin glass used for aerolight lamination, and that shown on the original statement, as we have proven the feetage shown on Exhibit "R" with the inventories and purchases.

Q. And what you have said applies also to whatever differences there are between Exhibit "R" and the showing on your original statement for the years 1929 and 1930?

A. Yes, sir.

(The hearing was adjourned until Wednesday, October 5, 1932, at 10 o'clock A. M.)

Wednesday, October 5, 1932.

Met pursuant to adjournment.

Present: Master and counsel as before.

C. L. McHENRY, resumes the stand.

Direct examination (continued).

By Mr. Christy:

Q. Referring to Exhibit "R", as to which you were examined yesterday, the glass account, and the line "Received from Reclaiming Department," what did that reclaiming include—what operation?

A. In the glass it includes the glass that is separated by hot water and the glass that is reclaimed by cutting down.

[fol. 715] Q. That is, in the one case you recover the sheets in the Duplate individually and in the other case you take the rejected piece of Duplate and cut it down. Is that correct?

A. That is correct.

Q. Now, it has been said that the practice of separating the sheets was abandoned. Do you know anything as to that?

A. To the best of my knowledge it has been.

Q. Do you know when it was, approximately?

A. Mr. Datz looked that up yesterday.

Q. Well, at all events, if Mr. Datz was correct in saying it was abandoned about the end of 1928, your figures on Exhibit "R" for reclaimed glass in 1929 and 1930 would be only Duplate which was cut down? Is that correct?

A. Yes, sir.

Q. But 1928 might include both?

A. It does. I am sure of that.

Cross-examination.

By Mr. O'Shea:

Q. Mr. McHenry, do I understand you in your last testimony to say that the item on Defendant's Exhibit "R," reading, "Received from Reclaiming Department," for the year 1929, and amounting to 386,178 feet, was not a reclaiming process at all but simply cutting down a smaller sheet from a larger sheet?

A. All glass that is put back into operation from rejects or returns is classified under the heading of reclaimed. They are either cut down from a large sheet to a smaller sheet or by separation. It is my understanding that we discontinued the separating process in the year 1928 for the reason that we discovered, as I recall it, in September of 1928 that the glass that had been separated was not usable to such an extent that it was economical to continue with this process.

[fol. 716] Q. Well, if any glass was returned in 1929, that would be Duplate glass, of course?

A. Yes, sir.

Q. And it is your understanding that you never attempted to reclaim any of the returned glass in 1929?

A. By separation. We did reclaim it by cutting down.

Q. You mean cutting down Duplate?

A. Yes, sir.

Q. Well, now, is this 386,178 double sheets of glass, as it would be if it were Duplate, or is it single sheets of glass?

A. It is single sheets of glass.

Q. So that the amount of Duplate reclaimed would be half of that, approximately?

A. Yes, sir.

Q. Now, down under the pyralin analysis there, Mr. McHenry, in the year 1928, the item reading "Operating Loss" and amounting in that year to 1,617,670. Not all of that operating loss was in rejects of laminated glass, was it?

A. No. That includes the cutting loss.

Q. Exhibit "O" shows the amount of polished plate feetage loss in laminated glass amounted to only 1,235,545?

A. It does.

Q. And the amount of pyralin loss in laminated glass then would only be half of that, would it not?

A. It would. The amount of pyralin loss in laminated

glass would be half the feetage of the duplate loss in single sheets.

Q. And what would that amount to?

A. 617,772 feet in the year 1928.

Q. That indicates then, does it not, that there was a million feet of pyralin loss in the year 1928?

A. Practically that amount.

[fol. 717] Q. Now, can you tell us what those losses were made up of? I mean by that not to tell us as a guess, but is there anything in your records to indicate exactly what it was made up of?

A. The greatest of this amount would be in the cutting loss.

Q. Have you got a record showing what your cutting loss was?

A. Not a complete record. We can show you what the cutting loss would be on certain orders.

Q. What do you mean by "cutting loss," Mr. McHenry? Explain that phrase a little more.

A. That is the difference between the full size sheet taken from stock and cut to the pattern size of glass that it is to be used in. The remainder, which is trimmings around the edge, we term as cutting loss.

Q. Well, now, can you tell us from your records how much that amounted to in feetage?

A. That is shown in our Form "J" for certain months, after a certain period.

Q. In '28, does it? Will you look at your Form "J" and tell us that?

A. This isn't shown in the year 1928, but was shown May, 1929, and thereafter.

Q. We are talking now about 1928. So I ask you again have you any records which will show what you have defined as cutting loss to have been in feetage in 1928?

A. We have not.

Q. Now, what other kind of loss might be included in that difference of approximately a million feet in 1928?

A. Loss for defects.

Q. If there were any defects?

A. There were plenty.

Q. Have you any records to show how much feetage was rejected because of defects?

[fol. 718] A. We have a record that will show what pyralin was returned to the shipper for defects upon the first

inspection. Now, this pyralin may have been accepted and put in stock. When it was cut to pattern other defects were discovered that were not discovered in the first inspection which would throw out that pyralin from the operation.

Q. You say that may have happened?

A. It did happen.

Q. You recall that it did happen?

A. I am sure that it did happen.

Q. On what do you base your assurance of that?

A. From being at the factory when it was going on.

Q. By that I take it you mean you now recollect in your memory that someone at that time told you it did happen?

A. Sure.

Q. And that is the only basis that you have for this statement now that it did happen?

A. I saw them examine the sheet and point out the defects.

Q. Did they point out the defects to you?

A. Yes.

Q. Have you any record to show what amount of feetage those defects included?

A. No, we have not.

Q. Was there any other reason why this approximately a million feet of pyralin was rejected, other than this so-called cutting loss that you have defined and this possible defective pyralin?

A. I can think of no other at present.

Q. You say you recollect that they were examining these sheets and they showed you defects in them. What would those defects be composed of? What was the nature of the defects?

A. Haze and dirt spots. This wasn't discovered in the first examination because it was not as thorough as the final examination.

[fol. 719] Q. Now, you say you did return some pyralin to the du Pont Viscoloid Company and I assume such as was returned you got credit for?

A. We did.

Q. Why didn't you return this pyralin when it was found defective?

A. After it was cut to size you could not return it.

Q. You thought it hadn't come up to the specification as being fit for the purpose of making laminated glass?

A. Yes, sir. It should have been discovered in the first inspection and it was not.

Q. So that then you didn't inspect thereafter until after you cut to size? I say your second inspection did not occur until after you had cut this pyralin to a specific size?

A. That is my recollection.

Q. That is true of all of the pyralin that was rejected and is included in this approximately a million square feet and which was rejected, as I say, for the reason that it was defective?

A. Yes, sir.

Mr. Smith: I think he said it included the defects in the cutting room.

Mr. O'Shea: I say the defects were included in the million odd that were rejected.

Q. Now, let us take 1929. The rejected laminated glass in that year amounted to 776,324, as indicated on Exhibit "O," did it not?

A. It did.

Q. Now, the pyralin included in that would be half of that feetage, would it not?

A. It would.

Q. And that would amount to how much?

A. 388,162 feet.

[fol. 720] Q. Now, the total operating loss in pyralin for the year 1929, as indicated on Exhibit "R," amounts to 1,119,691, does it not?

A. That is correct.

Q. So that there is a difference there of how much?

A. 738,529 feet.

Q. Now, is that difference made up of the same character of losses as you have already indicated in 1928, namely, cutting larger sizes to smaller size and defective pyralin discovered on a second examination?

A. It is.

Q. There is some testimony here, I think, that you ultimately got into a position of purchasing your pyralin in bracket sizes. Is my recollection as to that statement correct?

A. We buy it in different sizes, as 20 by 50.

Q. That was cut to specific sizes?

A. Yes, sir.

Q. Well, now, those sizes generally corresponded with the brackets ordered by the customer, did they not?

A. Oh, no.

Q. They didn't?

A. No, they did not.

Q. Well, don't the invoices of the du Pont Viscoloid indicate that you purchased a very large quantity of pyralin cut to size?

A. It was all cut to a certain size.

Q. But that size was not the size of the bracket for specific orders?

A. No, indeed.

Q. Were those sizes much larger than the brackets of the specific orders?

A. Certainly.

Q. Very much larger?

A. Yes, we would get two pieces of pyralin—that is, two pieces of laminated glass out of one sheet.

[fol. 721] Q. Will you say that again?

A. One piece of pyralin would be large enough that we could get two pattern sizes out of it in many instances.

Q. There wouldn't be much wasted in that operation, would there?

A. Probably a third.

Q. A third of it wasted?

A. In instances, yes.

Q. Well, let us put it this way: isn't it a fact, as shown by the invoices from du Pont Viscoloid Company, that you bought a large quantity of pyralin cut to the specification of 14 x 44?

A. I would have to look at the invoices to answer that. In the year 1928 we purchased pyralin size 14 x 44 inches, 1.9 per cent. of the total purchases. In the year 1929 we purchased the same size 4 per cent. of our total purchases.

Q. Well, now, is it not a fact that you also made and sold to customers windshields of that size—14 x 44?

A. It is possible, but my percentage of purchases covers all purchases of 14 x 44 regardless of whose product they were used in.

Q. And isn't it also true that that specific size in pyralin—14 x 44—was purchased for the purpose of keeping down your cutting waste as much as possible?

A. It was.

Q. And wherever the same situation appears as to other sizes the reason for it was the same, was it not?

A. It was.

Q. Now, do your books show the amount of losses occasioned by this cutting to smaller sizes in the year 1929?

A. Our cutting loss is shown from May, 1929, on.

Q. Those are shown on Exhibit "Q," are they not?

A. They are, and this includes cutting loss and the examination loss.

[fol. 722] Q. The list on Defendant's Exhibit "Q" includes both examination loss and cutting loss?

A. It does.

Q. Now, commencing with October on Exhibit "Q," it is stated in sheets of pyralin as distinguished from feetage of pyralin, is it not?

A. It is.

Q. Am I to understand from that that you have no way of computing from your records how much the feetage was in those months commencing with October, 1929, and continuing on through the balance of the accounting period?

A. We have computed these items by feet, as shown on Exhibit "R."

Q. For those months?

A. For all months.

Q. Well, let us take the month of October that is shown on Exhibit "Q" as being 7292 sheets. What is that reduced to feetage?

A. We haven't our work papers to show that. I would have to get our work papers to show what size sheets are included in this amount for October.

Q. Will you bring those this afternoon and let me have that information?

A. If I can get them.

Q. Is there any way that we can agree upon an average of what was in those sheets?

Mr. Smith: I don't think that should be done, if the Master please.

The Master: We will wait for the records.

* * * * * * *

Q. Now, will you explain briefly just what is meant by the term "batch"?

A. Batch is made up of sand, soda ash, cullet and other chemicals which forms the batch that is melted into glass.

[fol. 723] Q. That is to say, the various ingredients that are necessary to produce glass are put into a tank or receptacle and there they are mixed and treated with heat so that they become a molten mass, and from that tank they flow out onto a table or conveyor and the term "batch," as used in your cost sheet, is that molten mass that comes out onto that conveyor or table. Is that it?

A. Batch is the raw material before it is heated.

Q. Well, isn't it a fact that there would be a substantial differentiation in the cost of a batch for making a sheet of glass three-sixteenth of an inch thick and the cost of a batch making a sheet of glass of greater thickness, and that that differentiation would increase as you ranged up in thickness on a sheet of glass?

A. The difference in cost per foot is very, very small. At our plants at Kokomo and Crystal City the batch cost in making quarter-inch and three-sixteenths is practically the same, as three-sixteenths is not made except when due to grinding it was ground thinner than the quarter-inch. This is often done in order to save the glass. In casting, defects are developed and in order to make the glass salable it must be reduced in thickness below the size that they were intending to make.

Q. Well, isn't it a fact that the cost of one batch for making, let us say, a half-inch sheet of glass would be greater than the cost of a batch for making a quarter-inch thickness of glass?

A. It would be more than twice as much because one-half inch glass you have to allow more for grinding.

Q. Now, then, what is the limit of the area or width of glass that it is possible to produce at the Creighton plant?

A. I am not familiar with the size of the mouths of the tanks at Creighton.

[fol. 724] Q. Are you able to answer this question, namely, isn't it true that during the period of this accounting Creighton produced glass of a width of only seventy-two inches?

A. I know that is the width of one tank that was operating, although we did have a tank classified as No. 3 that produced a ribbon something like ten feet in width.

Q. Was that tank included in this comparison that you made between Creighton, Kokomo and Crystal City?

A. It was not.

Q. What is the width of the glass produced respectively at Kokomo and Crystal City?

A. I do not know.

Q. Are you able to state from your records whether the Pittsburgh Plate Glass Company had a plant that was susceptible of producing glass ten feet wide?

A. We have at Ford City.

Q. Do you know whether the plant at Kokomo was susceptible of producing glass of ten feet width?

A. Yes, it was.

Q. Is that same thing true of Crystal City?

A. Yes, sir.

Q. Now, you have made a comparison, as I understood it, between the cost of producing glass at Kokomo as well as the cost of producing glass at Crystal City, did you not?

A. I did.

Q. Does that comparison indicate that in some instances on items of cost Kokomo is higher than Crystal City and in other instances that Crystal City has a higher cost than Kokomo?

A. In each year, 1928, 1929 and 1930, Kokomo's cost per foot is higher than that of Crystal City.

[fol. 725] Q. The question I asked is with respect to specific instances or specific items of cost, and the question is that in certain specific instances of items of cost isn't it a fact that in some such instances the cost at Kokomo is higher than the cost at Crystal City, and in other instances the cost at Crystal City is higher than Kokomo?

A. You mean in cost of materials and so forth?

Q. All the items. We are talking about specific items. There are some fifty odd items that you included in your comparison of costs, are there not?

A. I do not have a comparison between Kokomo plant and Crystal City plant, but I do have a comparison between the costs of various materials, between Works No. 1 at Creighton and the Kokomo and Crystal City plants combined, which shows what items cost more or less at the different plants, combining Kokomo and Crystal City.

Q. Well, does Form "A" show the costs of Kokomo and Crystal City for each item that you included in your comparison?

A. It does.

Q. Isn't it a fact, Mr. McHenry, that you are able to state from your cost records there before you that in specific items of cost which you have taken into consideration in your comparison Kokomo, in some of such items, is higher in cost than Crystal City and in other items Crystal City is higher in cost than Kokomo?

A. That is true.

Q. Now, in your comparison what figure did you take as the cost of these plants at Kokomo and Crystal City for comparison with the cost at Creighton?

A. I used the total cost for the year of Kokomo and Crystal City, using the average.

Q. Going back to this question of batch. What was the batch cost per thousand square feet at Creighton?

[fol. 726] A. The batch used in our quarter-inch glass was $13.17 per one thousand square feet of glass.

Q. And what was the batch cost at Kokomo?

A. $31.11 per one thousand feet.

Q. For making what?

A. Quarter-inch glass.

Q. And what was the batch cost at Crystal City?

A. $29.97 per one thousand feet.

Q. For making what?

A. Quarter-inch glass.

Q. And only quarter-inch glass?

A. Yes, sir; as we term it.

Q. Is that last addition to the answer some qualification to what went before it?

A. We classify it as one-fourth inch glass although, as stated before, it may be a sixteenth over a quarter or a sixteenth or sixty-fourth less than a quarter.

Q. Well, could it be an eighth over a quarter?

A. No.

Q. You are positive in your mind and you know this from your records that they never made any three-eighths inch glass at either Kokomo or Crystal City, and when I say "never" I am confining myself to the accounting period here.

A. Not during the accounting period.

Q. Now, take 1930. Will you now tell me what the batch cost per thousand square feet at Creighton was?

A. For what month?
Q. The first five months of 1930.

(Adjournment taken until 1.30 P. M.)

[fol. 727] 1.30 P. M.

Afternoon Session

C. L. McHenry resumes the stand.

Cross-examination (continued).

By Mr. O'Shea:

Q. (The two previous questions read to witness.)
A. The batch cost per thousand feet at Creighton for the first five months of 1930 was $20.60.
Q. And what was the batch cost per thousand square feet at Kokomo?
A. $29.80 per thousand feet.
Q. And what was the batch cost per thousand square feet at Crystal City?
A. $26.90.
Q. Now, can you give me the pounds used per square foot at Creighton in 1928?
A. 3.38 pounds per foot.
Q. And what was the pounds per square foot in Kokomo?
A. In the year 1928?
Q. Yes.
A. 7.78.
Q. And the pounds used per square foot at Crystal City?
A. 8.47.
Q. Now, can you give me the pounds used per square foot in the year 1930 at Creighton?
A. 4.5.
Q. And the same figure for 1930 at the Kokomo plant?
A. 7.2.
[fol. 728] Q. And the same figure for 1930 at the Crystal City plant?
A. 5.9.

* * * * * * *

Q. Now, Mr. McHenry, did you get the records to enable you to convert the sheets of pyralin, as given on Exhibit

"Q", for the months from October, 1929 and thereafter, to feetage?

A. Mr. Datz and I have looked into this matter and he has with him all the information pertaining to that conversion and can give it to you—all the information that we have.

Q. Are you able to state at this time whether the automobile manufacturers ordered three-sixteenth inch glass or one-fourth inch glass?

A. I am not able to state.

(Re-direct examination of Mr. McHenry deferred.)

PHILIP F. DATZ recalled.

Cross-examination (continued).

By Mr. O'Shea:

Q. Will you please convert the figures given under the heading "Sheets", as they appear on Defendant's Exhibit "Q", into feetage and confine that answer simply to the three months of 1929?

A. Do you mean how the computation was made, or do you want me to actually make the computation?

Q. Just convert them into feetage.

A. To convert these sheets shown on Exhibit "Q" into feetage it would be necessary for me to have the original papers showing the actual number of sheets and actual number of feet taken out of stock in the pyralin examination department. I can tell you how it was done.

[fol. 729] Q. When you say you can tell us how it was done do you mean by that you can tell us the feetage?

A. I can tell you the theory followed in getting the feetage into sheets.

Q. But you can't tell us the feetage?

A. No.

Q. Can you do it tomorrow?

A. If I can locate the original papers showing the pyralin figures taken out of stock, I can give it to you. It is a question whether it is at Creighton or not—the original record.

Q. At the present sitting, Mr. Datz, you are unable to

convert the figures given under the heading of "Sheets" in Exhibit "Q" to feetage. Is that correct?

A. That is correct.

C. L. McHenry resumes the stand.

Redirect examination.

By Mr. Christy:

Q. I did not intend to introduce these at this time, but some of your cross-examination has brought it up. I have here a number of sheets which illustrate the cutting of various contours of pyralin used by Duplate in its manufacture from the pyralin sheets as purchased. Was the information shown on these sheets compiled under your directions?

A. Yes, sir.

Mr. Christy: The sheets, nine in number, identified by the witness are offered in evidence as Defendant's Exhibit "S".

Q. And these show actual losses in cutting pyralin running as high as 66 per cent., do they not?

A. That is correct.

[fol. 730] Q. Just to illustrate one of your answers to Mr. O'Shea, on this first sheet we have three contours cut from one sheet of pyralin. There is still a loss of 28 per cent., is there not?

A. That is correct.

Q. Now, I have here three other sheets illustrating the cutting of contours of glass from the glass rectangles as furnished to you during the year 1928. Were these also prepared under your supervision?

A. They were.

Mr. Christy: The three sheets are offered in evidence as Defendant's Exhibit "T".

Q. Have you looked for and picked out at random a number of individual cases where there was actual loss of glass in cutting the contours for Duplate from the rectangular sheets from which the windshields were cut?

A. We have prepared a sheet which covers not only windshields but front doors, back lights, rear doors, and so forth, showing the actual loss in cutting.

Q. Is this list exhaustive or is it just taken at random?

A. This is just taken at random.

Q. And this list shows a loss of 7.22 per cent. Is that correct?

A. Yes, sir.

Q. And that is a real loss which you could not charge to your customer? Is that correct?

A. Yes, sir. That is the loss from cutting from the size purchased to the size sold to the customer.

Mr. Christy: The sheet last produced by the witness is offered in evidence and marked Defendant's Exhibit "U".

By Mr. Smith:

Q. Mr. McHenry, I refer you to the first page of Defendant's Exhibit "O". In your cross-examination by Mr. [fol. 731] O'Shea one of the items referred to was that item near the bottom of page 1, which is "Laminated Glass Loss in Polished Plate Feetage", in the year 1928 the amount being 1,235,545 square feet. Now, Mr. O'Shea called your attention to that item and then asked you about pyralin losses for the year 1928, and I understood you to say that you have no records to show the cutting loss of pyralin in 1928. Did you so testify?

A. I did.

Q. Did you mean from that that you have no records now or did you mean to say that you never had any records on the subject?

A. We never showed the pyralin cutting loss separate during that period.

Q. You don't show in these exhibits a separate pyralin loss in feet for 1928?

A. We do not. If we had the record, it would be shown on Exhibit "Q".

Q. Then I understand your testimony to be that you have records to show pyralin losses but not to show separately the cutting loss in pyralin. Is that the point?

A. That is right.

By Mr. Christy:

Q. You were asked by Mr. O'Shea to give the batch cost per thousand square feet of glass at Creighton, at Kokomo and at Crystal City, respectively, and you gave those figures. Is that correct?

A. It is.

Q. Now, what differences were there, if any, in the cost of materials of which those batches were made per unit of weight or any unit in which they were computed?

A. Batch materials during the year 1928 cost per one thousand pounds 7.79.

[fol. 732] Q. Where?

A. At Creighton. The average batch cost for the year 1928 of our factories at Kokomo and Crystal City cost 7.26 per one housand pounds, or a difference of 53 cents per one thousand pounds. Computed at the pounds used, it made a difference in money of $69,434.91, which would increase our amount claimed for use of patents above the 12 cents per foot.

Q. That is, the difference would have been greater?

A. Yes.

Recross-examination.

My Mr. O'Shea:

Q. Do I understand, Mr. McHenry, that these drawings which are marked in evidence as Defendant's Exhibits "S" and "T" constitute only typical examples of the cutting?

Yes, sir.

Q. There were a great many other cases where you didn't run up to such a high loss as is indicated on these two exhibits, "S" and "T"?

Yes, sir.

Q. Now, you gave a figure to Mr. Christy of $7.79 as being the cost per thousand pounds of batch material. Did you mean that or did you mean the cost per ton?

A. The cost per thousand pounds.

Q. And will you please give me the figures showing the method in which you arrived at that?

A. This price is per ton instead of one thousand pounds, as shown on Form "A".

By Mr. Christy:

Q. Well, in any event, Mr. McHenry, the cost of batch per unit was actually higher at Creighton during this

period than it was at Crystal City and at Kokomo. Is that correct?

A. It was.

[fol. 733] By Mr. O'Shea:

Q. You mean by that, Mr. McHenry, that it was higher at Creighton than the average of Crystal City and Kokomo?

A. Yes, sir.

ROBERT L. CLAUSE, a witness produced on behalf of defendants, having been previously duly sworn, testified as follows:

Direct examination.

By Mr. Christy:

Q. You have already testified in this case I believe, Mr. Clause?

A. Yes, sir.

Q. You have read some of Mr. McHenry's testimony and are aware of what he has said as to the difference between the cost of manufacture of quarter-inch plate glass by what we are calling your new methods of Creighton and the cost of manufacture of quarter-inch plate glass by the methods being used at Kokomo and at Crystal City during the period of this accounting, have you?

A. Yes, sir.

Q. Would it have been fair to attempt to make this comparison on the cost of manufacture of one-eighth-inch plate glass, and if not, why not?

A. It would not have been fair to make comparison between one-eighth-inch glass manufactured at the two places or between Creighton and the average at Works 9, Crystal City, and Works 8, Kokomo, for this reason: the operations at Kokomo and Crystal City were alike, so that when I speak of one I am including both, the plants being practically identical. While it is true we manufactured and sold one-eighth-inch glass from time to time before the intro-[fol. 734] duction of safety glass in automobiles, the cost of operation in the production of one-eighth-inch glass at either Crystal City or Kokomo was actually higher than the cost of producing quarter-inch glass. The equipment

at these plants was very heavy, and to produce eighth-inch glass with the equipment suitable for producing quarter-inch glass caused excessive shrinkage.

Q. Now, were your plants at Kokomo and at Crystal City with respect to which this comparison was made standard, efficient plants for the practice of the methods that were used there?

A. Up to the time that these plants were changed they were probably the best plants of their type in the United States. The process employed was known as the standard method of making plate glass, which was the same method as was employed abroad. Large sums of money had been spent to make these plants the last word for the type of plant which they were.

Q. You refer to these plants having been changed. When was that, approximately?

A. Works No. 9, Crystal City, was changed over in 1930 I believe.

Q. But both were operating in what you have called the standard operation during the times to which Mr. McHenry testified?

A. Yes, sir.

Q. Now, will you please describe this standard method of making plate glass which you say was used at Crystal City and at Kokomo and was also used abroad?

A. I would start with the furnace hall where the glass was melted from the batch of raw material. The furnace hall consists of individual furnaces which will hold pots or crucibles, in number from twelve to twenty. The crucibles employed will hold approximately a ton of molten glass each. These plants had about sixteen furnaces apiece. The operation in the furnace hall was one of bringing pre-[fol. 735] pared batch to the furnace and filling the pots by labor with a ladle. To get the pot full required the putting in of three fills. After the pot was filled the temperature of the furnace was raised and the batch melted. Following the melting operation, temperature was held at still a high temperature and the glass was refined. After the refining period the temperature of the glass was lowered to approximately 2000 degrees, where the pot was held until the whole mass had cooled down to approximately this temperature when it was ready to be cast. This melting operation or cycle from the time the pot is put in until it is put in again

after casting requires from twenty-four to forty-eight hours, depending on the quality of metal produced. When the pot is ready to be cast it is taken out of the furnace by means of a crane and a large tongs and conveyed to what was known as the casting table. Here another crane took the pot and dumped it on the table. Along the side of the table were trams which determined the thickness of the rough plate desired. A roller was then passed over the molten mass of metal and a sheet was formed which contained about 350 square feet of rough glass. This plate was then shoved off of the casting table into ovens and after passing over five ovens, remaining on each oven approximately seven minutes, it was passed onto a leer. These leers were about 650 feet long, and in the course of traveling through the leer the glass plate was cooled down to room temperature, or approximately so. When the plate emerged from the cold end of the leer it was then examined and cut up into sizes suitable for the laying in the grinding and polishing operation.

Q. You say this glass was poured out of the individual pot, about a ton of it, in molten or highly plastic state, and was then rolled out by a roller, just as a cook rolls her dough. Is that correct?

[fol. 736] A. That is correct.

Q. And these trams that you spoke of were slightly elevated tracks on opposite sides of the table on which the roller would rest and so would define the thickness of the sheet. Is that right?

A. Yes, sir.

Q. And when you wanted to produce finished plate glass of a thickness of one-fourth of an inch, what was the thickness of the plate that you rolled to produce that sheet?

A. Well, we referred to the thickness of the plate as being 28/64th of an inch but, as a matter of fact, a variation from plate to plate caused some plates to be considerably thicker than that. If a pot of metal was rather stiff at the time it was cast, the roller which rolled it out would be cushioned by the mass of metal and would actually not fit down on the trams; so that at times or in places in the plate we would have sections thicker than the thickness of the trams.

Q. By the way, how heavy was this roller that rolled the plates? Give us some general idea.

A. I would guess twenty tons.

Q. And it was metallic, of course?

A. Cast iron.

Q. And the surface of the table was what?

A. The whole table was cast iron—heavy sections of cast iron.

Q. Then, what was the appearance of the rough plate? That is, both as regards evenness and as regards transparency?

A. The plate as it was drawn from the end of the leer was quite opaque, had quite a rough surface due to its contact on the bottom with the ovens—the stones in the bottom of the oven—and its contact with the rods which carried it through the leer. The top surface had a file-like appearance, which it took up from the knurling of the roll, and [fol. 737] had what we call cockles all over it, which are caused by the contraction of the plate in cooling down.

Q. What are cockles?

A. These cockles are unevenness of the surface due to contraction which is not uniform over the plate.

Q. You might say generally the surfaces of the plate were wavy?

A. Yes, sir.

Q. Now, please proceed and describe the grinding and the reduction of the plate to the finished size.

A. The grinding operation in this style of plant was carried on in individual machines. A machine was made up of a table which revolved on a spindle. These tables measured thirty-six feet in diameter. They were made of heavy sections of cast iron and were mounted on four wheels so that they could be conveyed about the plant on their own wheels on tracks prepared for that purpose. Over this table and spindle were mounted two very large and heavy grinding runners, the largest of which extended past the center of the table and over the outside edge of the table; the smaller one extending over the outside edge of the table and coming up to the center of the table to meet the first runner without actually touching it. The largest of these runners was approximately twenty-one or twenty-two feet in diameter. These runners were large cast-iron discs on which a facing of two-inch planking was secured to which heavy cast-iron blocks were fastened which came in contact with the surface of the glass and did the grinding when

sand and water was applied as an abrasive. These tables on the spindle were rotated at approximately twenty revolutions per minute and the drag of the runners on the surface caused the runners to rotate and do the grinding. Sand and water in a coarse state was first applied and after the surface of the glass was faced successively finer grades of sand followed, and finally an application of very [fol. 738] fine emery, bringing the surface down to what we termed "a smooth."

Q. Now, we will stop there a moment, please, Mr. Clause, and tell us how the glass sheets were secured to the face of the table in order to be ground.

A. I mentioned that these tables could be transported from the machine to various points in the factory. I perhaps should have started with one of these tables in the laying yard where the rough glass was taken from the leer mouth, laid on these tables by means of plaster and water and secured on the table with the plaster and the aid of pegs around the edge of the table; these pegs being driven into holes bored through the cast-iron top. This plaster requires about twenty minutes to set before it is possible to grind off the face of the glass.

Q. And, as I understand it, the sheets of glass which you say had been cut up to the proper size at the end of the leer were laid in plaster over the surface of this table with smaller sheets filling in around the edges and distributed all over it. Is that correct?

A. Yes, sir.

Q. And then, as you have described, the table was taken to the machine and whirled around under these runners, which rested on the glass, and by the aid of the sand and water abrasive the glass was gradually ground down to the smooth surface. Is that it?

A. Yes, sir.

Q. And how was the sand and water supplied to the table during the grinding operation?

A. Sand and water was supplied in a liquid form from a grading tank adjacent to the machine.

Q. And about how many different grades of sand were supplied?

A. About ten.

Q. In succession?

A. Yes, sir.

[fol. 739] Q. Gradually getting finer?

A. Yes, sir.

Q. And in between these steps was it necessary to wash off each coarser grade before you used the next finer one?

A. Yes, sir.

Q. State whether or not in this grinding or facing operation there were any losses of good glass.

A. It would be the exception rather than the rule if a table was faced without some breakage, due to the weight of the runners coming down on the uneven surface of the glass, and with poor conditions as regards the condition of the glass laid or the condition of the plaster at the time it was laid, it was not uncommon to have all the glass on the table leave the machine. The men operating these machines were guarded against such a happening by a heavy concrete wall about the machine and heavy gates at the point the table was introduced to the machine.

Q. Do I understand it was not uncommon for the glass to be stripped and thrown off the machine, as you might say?

A. That often occurred.

Q. Now, following the smoothing operation, where you have what you called the smooth, following the application of emery, what was done next?

A. The table was removed from the machine, transported to a department known as the jointing yard, where men would remove all the plaster in the joints between the plates and refill the joints with fresh plaster. The table was then conveyed to a polisher machine, which in appearance and construction below the floor was similar to the grinding machine but instead of having grinding runners over the table, four polisher runners were mounted. These were large spindle-like discs on which were mounted polisher blocks which were covered with felt which put on [fol. 740] the polishing effect when rouge was applied to the table. These machines ran at approximately the same speed as the grinders, and the polishing operation required from an hour and a quarter to an hour and a half to complete.

Q. I forgot to ask you the length of time required for the grinding.

A. The grinding operation required about fifty minutes to an hour.

Q. Now, we have one face of the glass ground and polished, or I believe it was called the side of the glass. What was done next?

A. The table was then removed from the polishing machine, taken to a department known as the turn-over yard, where with labor and cranes all the glass was stripped from the surface of the table, set aside, the plaster cleaned from the surface of the table, a new bed of plaster applied and the glass relaid with the polished side down. After permitting the new plaster to set, the second side operation was similar to the first side operation.

Q. First grinding and then polishing?

A. Yes, sir.

Q. And if we start with a cast rough plate, as you say, from twenty-eight sixty-fourths to thirty-two sixty-fourths in thickness, in order to produce a finished quarter-inch plate, you ground off about one-eighth of an inch from each face of the glass. Is that correct?

A. Yes, sir.

Q. About when was your Creighton plant started?

A. The first unit or grinding and polishing department was started in the summer of 1924.

Q. I suppose this Creighton operation did not commence as a completely finished operation, and I will therefore ask you to give in a general way the history of the [fol. 741] development of the operation as it existed at the date of this accounting period.

A. That would be 1928?

Q. Yes. The history and development down to that point.

A. Up to the year 1928?

Q. Yes—the development.

A. The Creighton operation comprises two main developments: the development of our tank operation, which supplies the rough glass for the grinding and polishing department, and then the development of the grinding and polishing department. The first major experiment on the tank development was in operation in the fall of 1921. This experiment was carried on at Creighton and had sufficient promise to warrant the company to build a full sized tank, rolling machine and leer at Works No. 5, Ford City. That plant has since been demolished. That operation was started in August, 1922, and except for details of

construction is exactly the way the operation is being carried on at Creighton today. During the period from the time of the experiment referred to in 1921 to the success of the operation carried on at Works No. 5, Ford City, developments on the continuous grinding and polishing were being conducted by our laboratory and when the decision was reached to build the Creighton plant—I would say early in 1921—the tank operation was well developed and the grinding and polishing machine was well under way.

Q. In 1921 you say?

A. Yes, that occurred prior to the building of the tank at Creighton, which was first put in operation in the last part of 1923. In other words, in the building of the Creighton operation, the tank was built and put into operation slightly before the grinding and polishing unit was completed and put in operation.

[fol. 742] Q. Yes, but you used the year 1921 there. I thought you made a mistake.

A. It might have been 1922. I think that covers the development.

Q. And do I correctly understand that the Creighton plant was completed in 1924?

A. Yes, sir. Let me correct that answer. The Creighton plant consists of two units; the first unit, consisting of one tank and one G. & P. unit, was in operation in the summer of 1924.

By Mr. Smith:

Q. What is a G. & P. unit?

A. Grinding and polishing.

By Mr. Christy:

Q. Now, please start with the operation of melting the glass and forming the glass sheet, and describe the Creighton operation as it existed in the years 1928, 1929 and 1930.

A. In contrast to the furnace hall of the old style plant, the Creighton operation employs what is known as a glass melting tank. This is a large box-like structure built of refractory blocks. The tanks we employ are from twenty-seven to thirty feet wide and approximately 130 feet long, allowing for a depth of five feet of metal in the tank. The

superstructure over the tank affords means of introducing the ports through which the flame is introduced for the melting.

Q. What is the capacity of those tanks?

A. These tanks hold about 1200 or 1500 tons of molten glass. The refractory blocks which are used to build this tank are oblong blocks, and are a foot thick as laid up on the wall. I mention this because these refractories are in contrast with the expensive pots used in connection with the furnace operation of the old process. At one end of this tank the raw batch is fed in and the tank is so con- [fol. 743] structed that the batch is melted, and at the other end of the tank molten glass can be withdrawn. The process we employ uses two rollers which fit up to the end of the tank below the surface of the glass in the tank and the glass which is fed through a slot to the rollers is reduced in thickness continuously and formed into a continuously forward moving ribbon which passes through a roller leer and is brought from a plastic state down to room temperature in a distance of about 350 feet.

Q. And this glass ribbon is formed continuously I understand?

A. Yes, sir. The operation goes on for from six weeks to three months' time without stopping.

Q. And about how fast is it formed—the ribbon?

A. Quarter-inch glass is rolled at about 80 inches a minute.

Q. And what is the width of the sheet produced?

A. The width of the sheet is about 78 inches, and we cut from it a sheet 74 inches.

Q. And the rolls are horizontal rolls and the sheet is formed between them, I suppose?

A. Yes, sir.

Q. The upper roll defining the upper surface of the ribbon and the lower roll defining the lower surface?

A. Yes, sir.

Q. And what serves to feed the molten glass into the pass between the rolls?

A. We have a refractory shape which we call the lip or slot which allows a mass of glass, approximately four inches thick and the approximate length of the rolls, to come in contact with the surfaces of the rolls.

Q. I meant under what force is the glass supplied to the rolls?

A. Under the head pressure of the metal within the tank.

Q. That is, the rolls are below the glass surface?

[fol. 744] A. Yes, sir.

Q. Now, in producing quarter-inch finished plate glass in this operation, about how thick is the ribbon produced by the rolls?

A. Between eighteen and nineteen-sixty-fourths of an inch.

Q. So that on each face there is an excess to grind off of about a thirty-second of an inch. Is that correct?

A. Yes, sir.

Q. What is the appearance of the surface of the sheet in the sheet as a whole?

A. The sheet as it emerges from the end of the leer is slightly opaque, but has a rather silvery, satiny appearance; very smooth and very flat.

Q. It is much smoother, I take it, than was the surface of the sheet produced on the roller table in the old practice?

A. Infinitely so.

Q. Now, will you proceed to describe the operation of grinding and polishing the glass produced in this Creighton rolling operation?

A. We might first say that as the glass emerges from the end of the leer it is cut off in sections of the proper length to be ground and polished. The grinding and polishing unit is really one huge machine made up of grinding and polishing units or heads, as we call them. It is installed in a long building about eleven or twelve hundred feet in length, through which pass four tracks for the full length, except at the extreme ends of the building are transverse tracks which I will describe later. The two center tracks of these four are known as the work tracks. On these tracks are mounted cast-iron tables which abut quite perfectly and are fastened together with a coupling device, making the joint for the time being practically rigid. The two center tracks are solidly filled with tables and these can be pro-

[fol. 745] pelled by a driving mechanism at any desired rate. These tables are about 75 inches wide and 11 feet long, and the glass cut at the end of the leer is cut such a size that we can lay one plate on each table or, if desired, we can lay longer plates across two tables. These plates are laid on the table using plaster, as in the old operation, but due to the flatness of the glass a very small quantity of plaster is required and there is no plaster required

around the border, as in the case of fitting square plates to round tables. Over these strings of tables are mounted the individual grinding machines and individual polishing machines referred to as heads. The two work tracks are divided into what we call the first side grinding operation and polishing operation and the second side grinding operation and polishing operation. As the glass on the table proceeds with the travel of the tables, it passes under a series of grinder runners and then under a series of polishing runners, so that when it arrives at the other end of the building the glass first laid has the upper surface ground and polished. By means of a transfer car traveling on the transverse track referred to at the end of the building, the individual tables are disengaged from the string of tables and moved to the return tracks—the other two tracks referred to—and sent to the other end of the building. Glass which has had one side ground and polished is then raised, turned over and relaid by crane and it enters the second work track. When that particular table reaches the other end of the building it has had its second side ground and polished and the transfer car again disengages it from the ribbon and puts it on the second return track. At this point the finished plate of glass is removed and passed on to the wash house and wareroom. The table then returns to the other end of the plant where it is ready to go through the operation a second time.

[ol. 746] Q. So that in operation you have being performed simultaneously the grinding and polishing of one side of one set of sheets and the grinding and polishing of the other side of the other set. Is that correct?

A. Yes, sir.

Q. Now, confining ourselves first to the grinding operation, because you have spoken of that last, what have you to say as to the saving in labor and materials in the operation as carried on at Creighton as compared with the old grinding and polishing operation as carried on at Kokomo and Crystal City?

A. It is very material.

Q. Why is it?

A. Having one gigantic machine requires only a fraction of the labor to attend it as is required in the individual machine employed in the old operation, and because of the physical condition of the sheet of glass supplied to the grinding operation, very much less glass has to be removed

and there is no superfluous glass around the edge of the table on which you are wasting power and materials to remove it. Due to the improved surface of the glass, the power consumption is materially less in this operation than in the old one.

Q. How about breakage of the glass in grinding?

A. Breakage in the grinding and polishing of this operation is comparatively negligible.

Q. Is there any difference in time between the two operations—grinding and polishing?

A. There is a little difference in time in the polishing operation, but it is a strange fact that polishing of glass requires about the same length of time in any operation that you can develop or has been developed up to date, due to the fact you are limited as to the heat you could apply through friction and so forth.

Q. I would have thought there would have been saving in the grinding time.

[fol. 747] A. There isn't a saving in time but in the amount of effort, because the time is determined by the speed of polishing or the speed of travel of the table.

Q. Now, coming to the melting of the glass and forming of the rough sheet, what have you to say as to saving in operating expenses there as to labor, material, fuel and so forth?

A. The attention required by a tank is very much less than that required by individual furnaces. The fuel required to melt a thousand pounds of batch in a tank is considerably less than required in the case of furnaces.

Q. Pot furnaces?

A. Pot furnaces. And, of course, the batch required to produce a square foot of rough plate of this thickness is much less than required to produce a square foot of rough glass by the old process for the same purpose, due to the difference in thickness of the rough glass required.

Q. In your old pot operation, as you have described it at Kokomo and at Crystal City, about how long would a melting pot last?

A. Sixteen melts was considered a good average life for a pot.

Q. And what did you have to do at those plants as regards the building of pots or procuring of pots?

A. We manufactured our own pots.

Q. You had a department for that purpose?

A. A department known as the pot house.

Q. How many pots did you make and keep on hand?

A. We used approximately 250 pots a month, and we kept on hand a stock of pots numbering 1500 to 2000.

Q. How much did those pots cost?

A. About $60 apiece.

Q. Now, Mr. McHenry in his testimony based upon the plant accounts has stated specifically that there was a sav-
[fol. 748] ing in the manufacture of plate glass by your Creighton operation, as compared with the average cost of manufacture at Kokomo and Crystal City, in specific figures of 12.474 cents per square foot of polished quarter-inch glass in the year 1928; of 9.907 cents per square foot in the year 1929, and of 9.694 cents in the year 1930. In your opinion, as a practical glass-manufacturer, is that a fair statement of the amount of saving which you would expect to find due solely to the differences between these two processes?

A. Yes, sir, it is.

Q. Now, of course, we have to do here with the manufacture of eighth-inch glass at Creighton. Speaking again as a practical glass manufacturer, familiar with the Creighton operation, is there any difference between the manufacture of one-eighth-inch glass at Creighton and the manufacture of quarter-inch glass at Creighton which would work any material change in the relative saving in the manufacture of eighth-inch as compared with quarter-inch?

A. The only possible difference can come into play through the difference in thickness of the rough glass used.

Q. Which would make quarter-inch glass cost a little more?

A. Yes, sir.

Q. How much would that amount to per square foot in your opinion as a skilled manufacturer?

A. It is so small an amount I would hate to give an answer to that without actually getting the figures.

Q. Less than a cent a square foot, do you think?

A. Yes, sir.

Q. State whether or not, in your opinion as a skilled glass manufacturer, it is fair for purposes of determining saving due to the Creighton process in the manufacture of eighth-inch glass to compare the manufacture of quarter-

[fol. 749] inch glass by the Creighton process and by the older process respectively.

A. I think that is fair.

Q. Now, referring to this Creighton system as used in 1928, 1929 and 1930, do you know whether or not as developed by you, as you have already testified, that system has been covered by patents?

A. The company holds many patents covering phases of the operation.

Q. Are you familiar with these patents?

A. Very familiar with them.

Q. How did you happen to become familiar with them?

A. I am chairman of the plate glass manufacturing department and the patent committee which was formed some years ago comes under my supervision. Any developments that are patentable are reviewed by the patent committee and after an application is ready for filing it is again reviewed by the patent committee before application for patent is made.

Q. So that you have to do with the matter of inventions and improvements, both from the point of view of obtaining patents for them and from the point of view of their actual development and practical use, have you?

A. Yes, sir.

Q. In a general way, what lines of development are covered by these patents, meaning of course the patents which relate to the Creighton operation?

A. We have two groups of patents covering the Creighton operation: one applying to the formation of the sheet and the second group applying to the surfacing or polishing of the sheet.

Q. That is, the two operations into which you have divided the manufacture already?

A. Yes, sir.

[fol. 750] Q. Can you give a list of the patents owned by the company pertaining to this operation at Creighton which fall in these respective groups?

A. I have here collected such a list of patents, which are not all the patents that the company holds on this operation but which I consider the more important ones. The list is as follows:

Formation of Sheet

Evans	No. 1,519,244	December	16, 1924
Gelstharp	No. 1,560,078	November	3, 1925
Gelstharp	No. 1,560,079	November	3, 1925
Fox	No. 1,569,082	January	12, 1926
Owen	No. 1,569,134	January	12, 1926
Koupal	No. 1,576,516	March	12, 1926
Oakes	No. 1,580,156	April	13, 1926
Core	No. 1,583,779	May	11, 1926
Hitchcock	No. 1,598,721	September	7, 1926
Rotherman and Evans	No. 1,622,346	March	29, 1927
Hitchcock	No. 1,657,212	January	24, 1928

Surfacing of Sheet

Heichert	No. 1,519,256	December	16, 1924
Fox	No. 1,554,804	September	22, 1925
Evans	No. 1,569,079	January	12, 1926
Evans	No. 1,577,457	March	23, 1926b
Soderberg	No. 1,580,175	April	13, 1926
Evans	No. 1,598,763	September	7, 1926
Fox & Evans	No. 1,610,366	December	14, 1926
Heichert and Evans	No. 1,610,374	December	14, 1926
Hitchcock	No. 1,629,502	May	24, 1927
Harrington	No. 1,631,126	June	7, 1927
Evans	No. 1,657,206	January	24, 1928
Fox	No. 1,660,330	February	28, 1928
Harrington	No. 1,671,718	May	28, 1928
Fox	No. 1,683,342	September	4, 1928
Hitchcock	No. 1,771,408	July	29, 1930

[fol. 751] Mr. Christy: Defendant's counsel produces a set of copies of the patents above listed and they are marked collectively as Defendant's Exhibit "V."

Q. Now, there are listed here twenty-six patents, copies of which have been offered in evidence. Please state whether or not the subject matter or essential parts of the subject matter of each of these patents were being actually used at Creighton during the period 1928 to 1930.

A. They were all being used during that period.

Q. Now, listed under the heading of "Formation of Sheet" there are eleven patents. Would you mind stating whether there is any one of these which you consider as a

fundamental or more important one pertaining to this particular branch of the subject?

A. Without posing as to the legal side of the patent, the Gelstharp Patent, No. 1,560,079 is the most important patent in this group.

Q. Why do you think that is true?

A. This is the patent covering the fundamental idea of the method employed in the formation of our rough sheet on converting the molten glass into a sheet of rough glass.

Q. And what do you understand to be the outstanding features of the method described in that particular patent?

A. Well, I have already described the process of forming a sheet in the rough way, where the glass is removed from the tank by a pair of rolls under the head pressure of the tank. That is one of the major claims in this patent and one which is essential to the operation. We have never been able to produce a satisfactory sheet when we vary from this principle as applied by this operation. Another important part of the operation as disclosed in this [fol. 752] patent is conveying the sheet from the time it is formed into and through the leer on rollers and flattening it at the same time.

Q. Has the latter a great advantage in your opinion?

A. It is the essence of our success.

Q. Elaborate that a little bit, Mr. Clause. Let me know what you mean by "flattening".

A. Are you referring to how it is done?

Q. Yes, how it is done and what is the importance of it. Point out how it differs from other methods in annealing the sheet.

A. Up to the development of this particular operation I do not believe glass had ever been flattened in a roller leer. Up to this time it had always been flattened on ovens referred to in my description of the old style plant, and after it was of sufficient stiffness to be conveyed was shoved off of these ovens onto a rod leer which invariably left marks or ridges in the glass. This process takes the glass sheet as it emerges from the pair of forming rolls and conveys it on a roll conveyor, a conveyor made up of individual rolls, and carries it through the flattening stage and on through the leer. During the flattening operation heat is applied to the sheet, which is already more or less plastic, and the action in going over the rolls reduces it to a very, very flat surface.

Q. That is, the tendency of the sheet to warp in cooling is completely done away with?

A. Yes, sir.

Q. And you get a perfectly flat sheet at the exit in the leer?

A. Yes, sir.

Q. Is it a matter of great importance to have a perfectly flat sheet?

A. The flatter the sheet the less there is to grind off and the less breakage you have in the grinding and polishing operation.

[fol. 753] Q. Now, Mr. Clause, I want to go through these other patents listed under the title of "Formation of Sheet". If you prefer, I will put a question as to each individual patent, or, if you like, I would be glad if you would take them up in order and point out the essential feature of each which is actually used to advantage at Creighton.

A. If agreeable, I would just as soon go through them, taking up one at a time. I will take them up in the order in which they are disclosed on the sheet submitted. These patents are included in the group known as the "Formation of the Sheet."

The first one is the Evans Patent, No. 1,519,244. To describe the importance of this patent I will have to go back and enlarge a little on what takes place in the case of a repair in a tank, or to any repair which causes a shutting down of the rolling operation. When one of these tanks is rebuilt, which has to take place from time to time, it is cooled down, and before being put in operation again is heated up. The cooling down and heating up operation causes rather severe expansion of the materials built into the tank and it does not stand still but moves quite a considerable distance—maybe as much as nine inches. The rolls which form a sheet are mounted on a carriage, which is rolled away from the front of the tank at the time of one of these repairs. If the carriage is of a fixed length, it might so happen that in putting it back after a repair it would be too large for the space required. The device shown on this Evans patent permits adjustment of that section of the roller leer, which we call at this point the apron, to bridge over the distance between the forming rolls and the permanent section of the roller leer and take up the difference in space due to the expansions cited. Considerable of our flattening is done on this apron, or on

this section of the roller leer, and it is quite essential that [fol. 754] the rolls be equally spaced. When the rolling carriage is put into place it is desirable that it be put in as quickly as possible and this mechanical development permits that this may be done without delay, and at the same time provides an automatic feature that the rolls be equally spaced regardless of what the space is between the tank and the leer proper. I think that covers the important function of that patent.

The next patent on the list is Gelstharp, No. 1,560,078. This is without a doubt one of our important patents as far as the success of the operation is concerned. While this patent covers a number of features, by far the most important one, the one which I will cite, has to do with the so called heated gun. I have described that the glass in the tank is supplied to the rolls through a refractory lip or slot. The heated gun is a metallic section which fits into the triangle between the rolls and the lip and defines the width of the glass as it is supplied to the pair of rolls. Our early operations employed a clay piece at this point. Under those conditions the glass naturally was hotter at the middle of the plate than it was at the edges, and the sheet formed by the forming rolls would emerge with cold edges and relatively hot center of the sheet. This caused a warping of the sheet and at the same time the edges which were dragged off of these clay pieces were ragged. Being colder than the center of the sheet and in a ragged condition, vents would start and the sheet was constantly broken as it passed through the leer. The heated gun replaces these clay pieces, and being internally fired and intensely hot, it supplies heat to the edge of the glass where needed and as a result the sheet is formed in a more nearly uniform condition in regard to temperature and a beautifully rounded edge results from the presence of the heated gun.

[fol. 755] Q. Just a minute, Mr. Clause. You spoke of fire cracks forming in the edge of the sheet when you used the clay gun at first and, consequently, breakage of glass in the leer, if I understood you. Did the heated gun do away with that condition?

A. Entirely so.

Q. Now proceed.

The next patent, Gelstharp, No. 1,560,079, is the fundamental patent on the formation of sheet already passed on.

The next patent, Fox, No. 1,569,082. In the operation of this particular tank process it is found essential to have an adjustable apron to meet the varying conditions of the glass sheet as it emerges from the pair of forming rolls. This patent covers the mechanism which permits this adjustment, together with a necessity of removing it quickly in the event it is found necessary to stop the sheet as it progresses onto the apron, and permits the dropping of the entire sheet into the basement of the building. When conditions are ripe and you wish again to put the plate through the leer, this section of the apron is quickly put into place and the operation goes on normally.

The next patent, Owen, No. 1,569,134. This patent is of vital importance in the success of our operation. It is perfectly evident that when you remove glass from a tank under the head pressure of the glass that there must be a means of shutting it off before it goes into the rolls, and the natural way to do this is with a gate. Originally, in our operation, a large clay gate or shear cake was used. When this clay shear cake was lowered into the glass to shut off the flow it might or might not fit snugly with the sill on which it was to rest and leakage occurred around it. To complete the actual shutting off of the flow of glass means had to be taken to chill the molten glass on the roll side of the gate and finally the flow of glass was stopped and [fol. 756] the operation could then be closed down. It was found on restarting the operation that it was sometimes almost impossible to raise the clay gate because it had frozen to the bottom of the tank and often when removed large pieces of the clay gate would be adhered to the sill on which it had rested. This in time would throw loose and often pass through the rolls, completely spoiling them. This invention relates to a water cooled shear cake made of steel. Regardless of whether it fits tightly on the sill when lowered, being water cooled, it soon chills, the glass around about it and shuts off the flow. It is also found very easy to raise the gate because it has not adhered to anything, as was the case in the clay gate, and the operation can be resumed without handicap.

Q. What are the occasions for the use of this gate while the furnace is running?

A. It is brought into play at any time it is necessary to stop the operation. The clay slot or lips referred to have to be removed from time to time and a new one inserted.

For a failure for any reason, either in the leer or in the rolling device, it is essential to stop the operation as soon as possible. It is also necessary to shut down about every three months to make a repair to the tank.

The next patent, Koupal, No. 1,576,516. This patent refers to leer control. At the beginning of our operation we had great difficulty in maintaining a sheet that would not break in the leer. This patent covers a control method which completely prevents the type of breakage I refer to, and at the same time gives the organization an opportunity to control the relative temperature, top and bottom, of the plate so that there is no warpage resulting from cooling the plate down. Before the introduction of this patent principle it was not uncommon to have a plate split in the middle and the split went on for a day at a time. [fol. 757] By the adjustment of the burners as shown, it is possible to regulate the temperature at the edges of the plate with relation to the center so that such a split, if it should occur, can be stopped very readily.

Oakes Patent No. 1,580,156. This patent refers to an operation given the term of "flushing." It permits the quick raising of the top roll of the two forming rolls. As our rolling operation goes on it is not uncommon for stagnant glass to collect behind the rolls, which is rolled around at that point and apparently is not able to get through into the sheet and, in a sense, clean this space out continuously. By the quick raising of the top roll a thick wad of glass is permitted to come through, which completely washes out the section referred to, and the roll is again lowered into place and the operation goes on uninterrupted. Before this device was installed in our operation attempts were made to go in from the side and rake out this section of molten glass, but rather unsuccessfully. Immediately following the function of flushing, in the event that the quality has been poor, it is materially improved.

Next patent, Core, No. 1,583,779. It is not uncommon to have the forming rolls warp at the time the operation is started. There is a terrific temperature shock to the forming rolls as the molten mass of glass first comes in contact with them. It is not uncommon for the forming rolls to warp from other causes, such as failure of water and so forth. In the event that the rolls do warp, and both warp approximately the same amount, it is possible to con-

tinue to form a sheet of uniform thickness by getting the warpage parallel. This mechanism permits the operators to change the relative rotation of one roll with regard to the other, so that they can get the warpage at parallel and continue the operation without changing the rolls.

[fol. 758] Next patent, Hitchcock, No. 1,598,721. I have just referred to the trouble with warped forming rolls. We consider this patent as one which is very essential to the success of our operation because it covers the first principle introduced to in part solve the difficulty of having roll warpage. This patent discloses the idea of introducing the water to the center of the roll and at the same time conveying it back and taking it out at the ends in such a fashion that the roll will be kept at a uniform temperature throughout. Up to the time this improvement was made in the construction of our rolls, it was often necessary to change rolls as often as every week, and at one stage of the development of our operation it was almost impossible for our shop to manufacture rolls at as fast a rate as they were being destroyed in the tank department. I lay emphasis on the importance of this patent because the accuracy of the rolls determines the accuracy of the plate formed, and the whole operation from this point on is dependent in a large measure on the accuracy of the plate.

Q. Mr. Clause, at this point—your rolls are normally hotter at the center than they are at the ends, are they?

A. The sheet is; so that you want your roll cooler at the middle than at your ends.

The next patent, Rotheram and Evans, No. 1,622,346. I have referred to the refractory lips or slot which forms the passageway for the glass between the tank and the rolls. While this is a huge piece of refractory, it is delicate in its shape and is subjected to severe shock when the molten glass comes in contact with it, which tends to cause it to warp or bow. While this piece of refractory is the connecting link between the tank and the rolls, it is essential that it be in close contact with the rolls and at the same time dare not touch the rolls—otherwise they become ruined.

[fol. 759] The problem of handling such a piece of refractory and supporting it is apparent. Before the water cooled structure disclosed in this patent was introduced, great difficulty was experienced in maintaining the alignment of

the refractory lips, and without this alignment unsatisfactory conditions result in a sheet of glass.

Next patent, Hitchcock, No. 1,657,212. This patent again refers to forming rolls and is an exact showing of the rolls employed in our operation. The importance of straight rolls has been brought out and the principle of introducing the water to the center of the roll was brought out in an earlier patent. This supplies the greatest cooling at the point where the greatest cooling is required. This patent starts with that principle and carries forward the improvement in maintaining a straight roll, and at the same time giving us a roll which does not permit the formation of air pockets or steam pockets within the water-cooled area. The water in this case is not only supplied to the center of the roll but is supplied to that point through an insulated tube which carries it to this point in a colder state. The question of a uniform temperature roll is most essential. Without a development such as shown in this patent, rolls have hot spots which at times become so severe that the roll will actually adhere to the glass or, if not that severe, will produce a sheet which is ununiform in temperature and, as a result, will not become flat.

Q. Now, will you proceed to discuss as you have done already the further patents which have to do with the surfacing of the sheet?

A. The first patent on the list is Heichert, No. 1,519,256. This patent discloses the means we employ for the handling and turning over of our glass in the Creighton grinding and polishing operation. It is comprised of a crane on which is mounted a vacuum raising frame. On the crane is [fol. 760] mounted what we term as a "hair pin," which is the turnover device. It is so arranged that the crane can pick up a plate of glass from a table on the return track, put it in the hair pin, leave it there. The operator on the crane can cause the hair pin to rotate for 180 degrees, thus turning the glass over. With the glass turned over, he then moves the vacuum frame up to the plate of glass, removes it from the hair pin and lays it on a table on the work track. The tables on the work track are constantly moving. By manipulation of his crane on which all of this apparatus is mounted, he is able to move the crane along at the rate of movement of the tables and lay the plate of glass. With this apparatus one man is able to do three functions—raise the glass from one table, turn it over,

and relay it on the new table. This particular turnover device handles glass with practically no breakage. From a labor standpoint, this is a very important piece of mechanism.

The next patent, Fox, 1,554,804. This patent shows the actual layout of one of our Creighton G. & P. units, together with its relationship to the glass as it emerges from the end of the leer. It covers the plant layout as I have described it briefly, where four tracks run the full length of the grinding and polishing unit, the two center ones being the work tracks and the two outside ones being the return tracks, with the two transverse tracks at the end of the building on which are mounted the transfer cars which handle the grinding and polishing tables as they come through the machine. It permits the consolidation of the grinding equipment at one end of the plant and the polishing equipment at the other end of the plant, which facilitates the feeding of the abrasive to the grinding machines from one central grading outfit. The same thought is carried out in supplying the polishing medium to polishing machines. Due to the simplicity of this layout considerable [fol. 761] is saved in investment through the construction which carries the grinding and polishing equipment. In other words, the same structure which carries one set of machines carries both sets of machines. Having machines consolidated through the center of the building permits the ready access to these machines by the overhead cranes which from time to time must remove them and replace them. It also provides for a convenient method of supplying the glass from the leer mouth to the grinding and polishing unit when required, or passing it on to stock when it is necessary to put glass to stock made in excess of that required by the grinding and polishing unit. From the standpoint of economy of operation, we consider this layout ideal.

Next patent, Evans, No. 1,569,079. This patent covers the mechanism employed between the end of our leer and the grinding and polishing department. As the glass emerges from the end of the leer it is cut off in sections, and it is apparent that where the glass is coming out at a constant rate the section must be moved forward at a rate faster than the travel of the ribbon to get it out of the way, and this mechanism provides a means of snapping the glass and taking it forward at a rapid rate where it is possible

to pass it on to the other tables where the edges are trimmed and from that point it is passed on to the grinding and polishing department.

Next patent, Evans, No. 1,577,457. In discussing this patent I would like to include Evans, No. 1,598,763. These two patents together cover the type of grinding and polishing machine already referred to as heads and the method of supporting them. This is one of our important patents as applied to the grinding and polishing department. In the operation of such a department it is necessary to quite frequently remove the grinding and polishing heads from [fol. 762] the machine. Grinding heads have to be taken off to have the runners replated with cast-iron blocks and they also are removed from one position to another as the grinding blocks wear down. In the polishing department it is absolutely essential to remove the polishing blocks from time to time and scrape off the excess rouge to keep the felt in such shape that it will polish. This construction permits the removal of these machines by the crane for this purpose or any other purpose. When a repair is necessary to any one of these heads the crane removes it and immediately it puts in its place another head which is standing ready to go into operation. The same means of support which permits the ready removal of this head also supplies the adjustable feature which is necessary to adjust the runner to the surface of the glass and thereby at all times apply the proper weight on the glass in the grinding and polishing operation.

Next patent, Soderberg, No. 1,580,175. This patent covers the type of universal joint which we use in connecting the grinder runner with the spindle in the head which drives it. It is essential that the runner have some flexibility with relation to the spindle which drives it; otherwise, with any slight misalignment of the machine or misalignment of the table serious breakage would result. This type of universal joint permits such flexibility, together with the provision that the amount of flexibility can be controlled. At times these runners are raised when in rotation and without a check as to the amount of flexibility they would be free to flop about in disastrous amount. The universal joint disclosed also provides for the introduction of the sand in and around it to the center of the runner without damage to the universal joint.

The next patent, Fox & Evans, No. 1,610,366. I have described the transfer cars at each end of the building which handle the tables as they come through the grinding and [fol. 763] polishing machines and return them on the return tracks. This patent shows the actual form of construction employed where a locomotive car mounted on the transfer car moves off onto the tracks to get a table or to push a table already gotten onto another track. It permits the operation of the transfer car and the locomotive by the one operator on the locomotive and a means of uncoupling the tables, from the locomotive without the help of other labor and permits the operator at the same time, moving about on the transfer car, to index it accurately with the tracks onto which he wishes to push a table or to remove a table. The mechanism is tied up electrically to be foolproof, and the whole operation is carried on by one man. The importance of this operation can be seen when one considers that this man is responsible for the arrival of the individual tables which are connected onto the regular tables and onto which the glass is laid. The operation must be carried on quickly to supply the two machine ribbons.

Next patent, Heichert and Evans, No. 1,610,374. This patent covers the very simple and efficient means of carrying on two operations that originally required considerable labor. I have described that pegs are used along the side of the table to hold the glass, which is held on the table in addition with plaster. This mechanism automatically drives down the pegs and removes the plaster and puts the surface of the table in better condition for a new coat of plaster than though it were scraped off by hand labor. Before the introduction of this machine six men were employed to carry on this operation in one unit on one shift.

Next patent, Hitchcock, No. 1,629,502. This patent covers the type of grading system employed in our operation. One system as disclosed supplies the grinding machines on both rotary tables. I have described earlier today that the grinding operation starts with coarse sand and successively [fol. 764] finer grades of sand are applied to the grinding operation after the surface is planed. This equipment supplies the full range of graded sand to the grinding machines in the proper sizes and quantities to produce a smooth that will properly polish in the polishing department. It is apparent that a failure of the grading apparatus would cause

a hundred per cent. loss of the product during the time when it was functioning badly. Contrasting this thought with the same thought as applied to individual machines used in the old operation, it is apparent that the grading system is a very vital part of the grinding and polishing unit. This system functions perfectly and can be controlled by one operator. If we did not have this system of grading sand, I do not know where we would turn for one that would give comparable results As evidence of the importance of this development, the company paid Mr. Hitchcock approximately $200,000 for his development in this line, to say nothing of the royalties paid him on the grading apparatus which covered steps leading up to this development.

Next patent, Harrington, No. 1,631,126. This patent shows the type of coupler we employ in the holding of our tables together. It provides for a hook or latch which pulls them tightly together and at the same time specifies fingers and lugs on the ends of the table which are interlocking and prevent any end motion of the tables, relative to each other, up or down. In the development of our tables for the grinding and polishing unit, the question of a satisfactory coupling device caused the engineering department as much trouble as any feature in the whole plant.

The next patent, Evans, No. 1,657,206. This patent discloses a further improvement on the transfer car system already described. Due to the number of operations the man operating the transfer car has to carry out the time allowed for each operation is very limited. The operation [fol. 765] is now carried on where two tables are solidly bolted together so that two are handled in the same time as one. With the wear and tear on the rails of the transfer car onto which these tables travel, a variation in level may occur between the rails on the transfer car and the rails in the building. This also might occur from other causes, but the patent has to do with the necessity of keeping these rails on the same level with the rails from which the cars are taken or pushed onto; otherwise, in transferring a double table from the tracks to the transfer car terrific strain might be put on the joint where they are bolted together and injury occur.

By Mr. O'Shea:

Q. That is, it keeps the cars level?

A. Yes, sir, keeps the transfer car. This patent also dis-

closes all the other features of a one-man operation, including the indexing of the car with the tracks as disclosed previously.

Next patent, Fox, No. 1,660,330. This patent is the fundamental patent of which the Harrington patent on the coupler device already described is an enlargement and actual showing of what we employ. In other words, this is the basic patent on our coupling device.

Next patent, Harrington, No. 1,671,718. This is one of our very important patents in the successful operation of the grinding and polishing unit and applies to the electrical control of the operation. All of the apparatus in the grinding and polishing unit is driven by electrical motors. Each individual grinding and polishing runner has its own motor. In this unit there are 154 grinding and polishing heads. This electrical system, which is very complicated, safeguards the equipment against mistakes that the operators might make in the starting and stopping of the equipment. It does for the operator what he would have to do in the [fol. 766] starting or stopping of the plant but does it in very much less time. It safeguards the equipment from throwing a load on too rapidly. It safeguards the product being ground and polished from all the things that can happen in the event that the operator could not get around to stop the operation or start it at the right time. I believe only a very high-grade electrician could actually understand this patent, but to point out some of the things that can happen in the operation of a unit of this sort, let us suppose that the motors which drive the tables forward continuously should suddenly stop. If the grinding runners continued to run, they would grind holes in the glass. Under this system, if the ribbon of tables stops moving, every runner in the shop comes up automatically. If in the operation one motor driving a grinder runner should stop operating, the runner would at once stop rotating and would drag on the glass, ruining all of the glass which passed under it before it was raised. Under this system a runner stopping in rotation for any reason at once raises off the glass. This patent also covers a complicated automatic system whereby if the power goes off, the runners all raise and when it comes on again, they will go on in sections so that the load is not thrown on too rapidly. It also provides in the event that the voltage drops, which

means that the whole circuit would kick out if the full load remained on, that those runners least essential to the operation come up first, so that the glass further along the ribbon will not lose either polishing or grinding effect. The electrical system defined also permits the metering of the power to each individual runner, disclosing to the operator at all times the amount of power consumed by each runner. It is essential in the grinding and also in the polishing department that the amount of power supplied to each runner has a definite relation to the power supplied to the next runner or to other runners further on in the process; so [fol. 767] that the operator has this means as a guide to adjust the weight of the runner or the condition of the supply of rouge in the case of a grinder runner or a polisher runner. I think that covers the main points in that patent.

Next patent, Fox, No. 1,683,342. In the early stages of the operation of the grinding and polishing units at Creighton it was found that even with the best designed drives that we could get up to propel the tables through the grinding and polishing machines, that they would move forward in a jerky or surging fashion. This meant that the grinding effect was not uniform. In fact, the effect of the surging could be seen on the polished glass. It also threw a strain on the couplers joining the tables together, which at times became so severe that they would loosen and the tables part. This patent covers a scheme for applying a backward pressure on the tables at the opposite end of the string on which they are driven. It is known as a "holdback". It successfully removes the surging of the string of tables and at the same time keeps the ends of the tables under great compression.

Next patent, Hitchcock, No. 1,771,408. This patent covers the principle employed in supplying the rouge to our polishing department. In a sense it is like our grading system where graded sand is applied to the individual grinding machines. Here we supply rouge to the individual polishing machines. It is not an easy matter to supply a small and definite quantity of rouge to one of these polishing machines. You either get more or you get less than you want. The equipment which this patent covers takes what is required and lets the rest go by. A definite quantity of rouge has to be supplied to the various runners in the process of going from no polish to a complete polish, so that it is essential that a satisfactory means is had for the

supply of a definite quantity of rouge to the individual [fol. 768] runners. This equipment satisfactorily carries out this function, and I would say that this patent is as important to the successful polishing of a continuously moving ribbon as we feel the grading patent is to the successful smoothing of the continuously moving glass.

Now, while all of these patents individually are important in themselves, I think it is apparent that when collectively they are woven into the fabric of a grinding and polishing unit such as I have described at Creighton, which makes for a smooth and continuous operating machine, that their importance pyramids.

By Mr. Christy:

Q. Do I correctly understand that the subject matter of all of these patents as you have recited it above was in actual use at Creighton as early as the first of 1928 and continued in use down through the accounting period?

A. Yes, sir.

(It is stipulated that printed copies of the patents already offered in evidence shall have the same effect as the original ones would have, and that the dates respectively given on the face of each as the date of the application for the patent shall be treated as prima facie correct.)

(Hearing adjourned until Thursday, October 6, 1932, at 10 o'clock A. M.)

[fol. 769] Thursday, October 6, 1932.

Met pursuant to adjournment.

Present: Master and counsel as before.

Robert L. Clase, resumes the stand.

Direct examination (continued).

By Mr. Christy:

Q. Referring to this operation at Kokomo and Crystal City as to which you have testified, and which I think we have called the old operation, was it during the accounting period covered by any patents of a fundamental nature?

A. No, sir.

Q. In all essential features it had been practiced for a great many years, had it not?

A. It was the old standard practice as brought over to this country from abroad and there were any number of plants operating in this country by the same process. Any patents which the company held on details of construction were of minor importance. The substance of the operation was open to anybody.

Q. Was this glass which you furnished to Duplate for its laminated product in any sense a special product?

A. No, sir.

Q. You made no special runs for it or anything of that kind?

A. No, sir.

Cross-examination.

By Mr. O'Shea:

Q. Mr. Clause, do you know whether the Ford Motor Company had a glass plant in the year 1928 and thereafter? [fol. 770] A. They did.

Q. Do you know whether they had a continuous process in operation there, not necessarily a continuous process that infringed your patents, but what is generally known in the trade as a continuous process, and when I say do you know whether they had such a process I mean do you know whether they had that in the years 1928, 1928 and the first half year of 1930.

A. Yes, sir, they did.

Q. Were there any other manufacturers of glass of the type that we are discussing here that you know of that had a continuous process, again not necessarily one identical with yours or infringing your patents, in that period?

A. Libby-Owens Company had one similar.

Q. Well, I take it that all these so-called continuous processes effected some saving over the so-called old process?

A. I believe they did.

Q. Do you know in what year the Ford Company first had their continuous process in operation?

A. I can't answer as to the exact year, but they started about the time we did.

Q. About the time you did?

A. Yes, sir—at Creighton.

Q. Is that generally true of this other company you spoke of?

A. That is not true of that company. They started considerably later.

Q. And can you define a little more definitely what you mean by "considerably"—in year periods?

A. I am guessing to some extent, but I don't believe the Libby-Owens-Ford Company had a continuous G. & P. before the year 1928. Now, I have no facts upon which to base that.

Q. That is your best information and belief?

[fol. 771] A. Yes. My reason for believing that is that they had an individual plate grinding and polishing operation which was a step between the old operation described at Crystal City and what they now have today.

Q. Well, you spoke of Libby-Owens-Ford Company having had one some time and your best belief is it didn't get into operation until about or after 1928. This Libby-Owens-Ford Company was an amalgamation of an old company known as Edward Ford Company, was it not, and the Libby-Owens Company?

A. That is correct; yes, sir.

Q. Do you know whether or not this Edward Ford Company had some continuous process operating in its plant before the amalgamation?

A. I think they had a grinding and polishing unit known as the Bicheroux system.

Q. That Bicheroux process is one that was developed abroad, was it not?

A. Yes, sir.

Q. Do you know when the National Plate Glass Company put in their continuous process—in a general way now?

A. I think they installed a Bicheroux grinding and polishing unit, I would guess, in the year 1929 or 1930. Mr. O'Shea, you have misnamed that. It is not a Bicheroux; it is a Heuze.

Q. However, Mr. Clause, there is a so-called continuous process known in the trade as the Bicheroux process?

A. The Bicheroux process is one of casting pots from furnaces through a pair of rolls and hasn't anything to do with grinding and polishing.

Q. It just has to do with the casting operation?

A. That is right.

Q. But isn't that known as a continuous process in the sense that we have been using it here—at least up to the point where it stops through the casting operation?

[fol. 772] A. No, sir, we don't term it as such.

Q. Well, you have stated, have you not, that the Ford Company did have and perhaps still has a so-called continuous process in operation?

A. Yes, sir.

Q. Can you give me, Mr. Clause, from your experience in the glass business, the weight of one square foot of fourth-inch plate glass?

A. You are speaking now of finished glass one-fourth of an inch?

Q. Yes.

A. I think it is about three and three-quarters pounds.

Q. Is it a fact, Mr. Clause, that the bulk of the product at Creighton was sold to automobile manufacturers and automobile body manufacturers?

A. I think it would be a correct statement to say the bulk was sold to automobile manufacturers. As a matter of fact, at times we operate that plant on nothing but glass for mirror manufacturers. In other words, the demand from the automobile trade is very spasmodic and if we supplied only the automobile trade from that plant, there would be many times when the plant would be completely shut down. During those intervals and at all times we supply mirror accounts and trade of that sort from the Creighton plant. We have some customers that demand their mirror requirements be shipped from that plant.

Q. During this period of '28 and '29 and the first five months of 1930, you supplied no large store front glass from the Creighton plant, did you?

A. I think we did supply some.

Q. On this continuous process?

A. Yes, sir.

Q. Well, I gathered from your direct testimony that in this period your width that you manufactured at Creighton [fol. 773] didn't exceed 74 inches. Am I correct in my recollection of that?

A. Yes. I perhaps should modify my statement. We supplied store front glass up to the limit of the size we manufactured.

Q. Up to the 74 inches?

A. Yes, sir.

Q. Any sizes above that during this period were supplied from Kokomo and Crystal City?

A. By necessity, yes.

Q. What was that necessity?

A. We can't manufacture glass at Creighton wider than 72 to 74 inches in width.

Q. Is is the fact that the bulk of this automobile glass was required to be of a thickness of three-sixteenths inch, with the possible tolerances that are allowed from that thickness by the manufacturer?

A. The automobile trade does use quite largely three-sixteenths-inch glass, but in many accounts we have a tolerance from five to nine-thirty-seconds of an inch. Some accounts take them from five to seven, some seven to nine, and other accounts take in the full range of five to nine.

Q. How thick was the mirror glass manufactured at Creighton?

A. I think mostly three-sixteenths.

Q. Was glass of greater thickness than three-sixteenths plus these tolerances made at Kokomo and Crystal City?

A. Yes, sir.

Q. There is one question which is simply for the purpose of clarity. My recollection of your direct testimony at one point is that you spoke of an oven in the old process and a leer as being in the new process. Will you please tell us just what the difference between an oven and a leer is?

[fol. 774] A. In the old process when the glass was pushed over off the casting table it was so plastic that it had to be shoved into an oven where it would rest and stiffen up before it could go on to a leer and be brought down through the annealing range to room temperature. As a matter of fact, there were five of these ovens in the type of leer we used and I think in most of the leers used generally in that process.

Q. That is the old process?

A. Yes, sir.

Q. Now, go ahead and give your description of a leer.

A. Well, a definition of a leer is, I would say, a piece of equipment which takes in at one end a product at a high temperature and brings it down to room temperature in passing through its length in such a fashion that it is not destroyed by breakage, or it is annealed in such a fashion that it is satisfactory for use at the cold end.

Q. You spoke in your direct testimony, in connection with one Hitchcock patent, I think it was the 1,629,502, of having paid the patentee there very large down payment and in addition thereto large royalties.

A. Yes, sir.

Q. Were there any royalties paid to any of these others, or down payments to purchase these, or anything of that sort?

A. No, sir.

Redirect examination.

By Mr. Christy:

Q. In this Bicheroux or Heuze process of which you have spoken, is it not a fact that the glass was rolled in individual sheets and not continuously?

A. Yes, sir.

Q. That is true? It was an individual sheet operation, not continuously?

[fol. 775] A. That is true. One pot was cast after another and the contents formed into individual sheets.

Q. During the accounting period and at all times, the product of the Creighton plant has been used for what you call glazing, has it not?

A. Yes, sir.

Q. I don't know whether it is clear or not, but this National Plate Glass Company's method which was mentioned was of a Bicheroux or Heuze type, making individual sheets, was it not?

A. Yes, sir.

Q. All these patentees from whom you obtained these patents without any remuneration, as you have testified, were employees of your company?

A. Yes, sir.

By Mr. O'Shea:

Q. In the Ford continuous process operation they cast from a tank, did they not?

A. That is correct.

Q. With the molten mass flowing out of a tank onto the table?

A. Yes, sir.

Q. As distinguished from pots?
A. Yes, sir.

Mr. Smith: If the Master please, we do not feel we can proceed further with our case until we have your ruling on the right to examine the plaintiff's books.

(At this point arguments were presented by counsel for the plaintiff and for the defendant on the application of defendant to examine the books of plaintiff.)

ORDER DENYING MOTION TO EXAMINE BOOKS AND RECORDS OF PLAINTIFF

The Master: Defendant's application to examine the books and records by accountants employed by defendants [fol. 776] as read into the record on Tuesday morning by Mr. Smith, covering all details in connection with the matters mentioned in said application, is refused and the defendant is ordered to proceed at once with its case.

Mr. Smith: Defendants except to the refusal of defendants' application to examine the books and records of the plaintiff and decline to proceed further with this case until this matter has been passed upon by the Court.

(Adjournment taken until further notice.)

And now, October 7, 1932, it appearing to the Special Master that the Special Master's denial of the application of counsel for the defense has been referred to the Court, and that the Court has reserved its decision thereon, the hearings before the Special Master are continued until such time as meets the convenience of the parties, after the decision of the Court has been rendered on the question before it.

Pittsburgh, Pennsylvania,
Wednesday, November 2, 1932.

Met pursuant to agreement.

Present: G. Dixon Shrum, Esq., the Master; Ambrose L. O'Shea, Esq., of counsel for the plaintiff; Marshall A.

Christy, Esq., William Watson Smith, Esq., L. E. Hickman, Esq., counsel for the defendants.

C. L. McHenry, a witness produced on behalf of the defendants, having been duly sworn, testified as follows:

[fol. 777] Direct examination.

By Mr. Christy:

Q. Mr. McHenry, all the accounts that have been put into this case so far have stopped with the end of the accounting period, May 30, 1930. After May 30, 1930, was any duplate, made and sold before May 30, 1930, and sealed with gelatine, returned to the Duplate Corporation?

Mr. O'Shea: Objected to on the ground that it is incompetent, irrelevant and immaterial.

The Master: Objection overruled, and an exception noted.

A. Yes, there was.

Q. Have you collected and can you produce a list of the returns after May 30, 1930, of duplate—using gelatine as an adhesive—which was manufactured and sold before that date?

Mr. O'Shea: May I just put in an objection to all testimony relating to anything that happened after May 30, 1930?

Q. Of course, my question means duplate returned on account of defects.

A. I have.

Q. Will you produce it.

Mr. Christy: Statement is offered in evidence as Defendants' Exhibit "W," being summary of returns of duplate, made with gelatine adhesive, and made and sold prior to May 31, 1930, and subsequently returned for defects.

Mr. O'Shea: The same objection.

Q. This statement covers a period commencing June 1, 1930, and continuing through May of 1931, does it?

A. Yes, it does.

[fol. 778] Q. And this statement shows, in the aggregate, 49,810 square feet of duplate, having a billing price of $83,561.42, returned for defects; does it not?

A. Yes, sir.

Q. Why is it that you had such a large accumulation of returns in the few months immediately after May of 1930?

A. As previously explained, the returns were held usually by the motor manufacturers until a sufficient number could be accumulated to be shipped back economically. I would say, hardly any of the returns are sent back in individual sheets; they are held until they get a shipment. This would account for any variation from a regular return each month.

Q. In the individual months, on this Exhibit "W," you have shown under title "Customer's Name," the names of various automobile manufacturers and others. Are these names supposed to indicate the customers who actually made these returns?

A. They are.

Q. Now, is there any other adjustment to be made with respect to duplate, in which gelatine was used as an adhesive, which was made and sold prior to May 30, 1930, and which has not yet been covered?

A. Yes, we have a list of allowances for replacements that were necessary due to the use of gelatine adhesive and is covered in the following schedule.

Mr. Christy: The account list produced by the witness offered in evidence as Defendants' Exhibit "X."

Mr. O'Shea: Same objection.

Q. Now, you said just above that these replacements were due to gelatine adhesive. What did you mean by that?

A. Using gelatine in laminating.

[fol. 779] Q. Did you mean the defects, calling for replacements, were all due to the use of gelatine?

A. No; this was glass that was laminated with gelatine.

Q. You just mean you used gelatine as an adhesive?

Mr. Smith (to the witness): As distinguished from some other adhesive?

A. Yes.

Q. Now, please explain a little more fully the nature of these replacements covered in Exhibit "X"; that is, why they took place, and how they were handled.

A. Glass that had been shipped out and put in cars was sold under a guarantee of from two years to fifteen months.

If, by the end of 1930, the glass would go bad in a car, the customer would come to our dealer or our warehouse and request a replacement under the guarantee. At that time the replacement was made and a charge made back to the Duplate Corporation from the warehouse. This schedule covers all such replacements. The glass was not returned to Duplate; if it had been, it would have been classed under the other schedule of returns.

Q. That is, the warehouse or distributor simply took out the defective windshield, or other light of Duplate, replaced it and threw the defective one away; is that what you mean?

A. Yes, sir.

Q. And at what rates were many of these replacements made, Mr. McHenry?

A. Some of them, the rate for the glass was as high as $4 a foot, because that was what the dealer had paid for it.

Q. That is, the dealer had to pay $4 a square foot for the piece of Duplate which he used to replace the defective one; is that what you mean?

[fol. 780] A. Yes, sir.

Q. And he charged your warehouse, and you credited the warehouse with that amount; is that right?

A. That is right.

Q. Now, you said something about the end of 1930. When did this guarantee go into effect?

A. I cannot give the correct date. Mr. Judson and Mr. Higgins could probably give you that. It was two years for the first period. I think I can give you the date as to the length—as to where the change was made. It was guaranteed for two years from February, 1928, to January 1, 1930, and for fifteen months from January 1st on.

Q. Now, this list of credits for replacements covers a period from May 31, 1930, to July 31, 1931; is that correct?

A. Yes, sir.

Q. And these were all for Duplate which was made and sold prior to May 30, 1930?

A. Yes, sir; and laminated with gelatine.

Q. And none of these replacements—see if I understand you correctly—are included in your Exhibit "W"?

A. They are not.

Q. The plaintiff in this case called and examined Mr. Sharpe, of the accounting firm of Messrs. Lybrand, Ross Brothers and Montgomery, certified public accountants,

and Mr. Sharpe offered certain statements which plaintiff put in evidence as Plaintiff's Exhibits 9 and 9-A, showing alleged profits made by the Duplate Corporation upon profitable sales during the accounting period. Have you read, and do you understand Mr. Sharpe's testimony, and have you examined, and do you understand, these exhibits?

A. I do.

Q. In the computations of Exhibits 9 and 9-A, Mr. Sharpe, as he stated, by the express direction of the plain-
[fol. 781] tiff, excluded from his computation of alleged cost of sales very large items, expenses and losses incurred by the Duplate Corporation in its manufacture of the infringing product. You have been asked to prepare and produce a statement on the same lines as that of the witness Sharpe, namely, setting forth profits which the defendant can be said to have made upon its profitable infringing sales (disregarding all losses on non-profitable sales) and including in cost of sales those items which the defendant considers were properly chargeable to cost of sales. Have you done this?

A. I have.

Q. Will you please produce the statements which you have heard referred to in the last question?

A. (Witness produces statements.)

Q. One of these statements appears to be a computation of monthly cost of sales, and the other one appears to be an extended computation of profits and losses on individual sales during the accounting period; is that correct?

A. That is correct.

Mr. Christy: The first statement, being computation of cost of sales, is offered in evidence as Defendants' Exhibit "Y." The second statement, being the actual computation of alleged profits and losses, is offered in evidence as Defendants' Exhibit "Z."

Mr. O'Shea: Plaintiff desires the privilege of reserving any objection to the offer of these Exhibits "Y" and "Z" until he has had a further opportunity of examining them.

Q. Included in Exhibit "Y" is a letter, directed to counsel and signed by you, explaining the methods of computation which you have pursued in these two Exhibits "Y" and "Z," is there not?

[fol. 782] A. Yes, sir.

Q. Are the statements in that letter correct, to the best of your knowledge and belief?

A. They are.

Q. It appears from the third sheet of this Exhibit "Z," being one of the summaries which, for your own purpose, you have called Exhibit "B," that you find a net profit gained by the defendant, on its profitable infringing sales, of $164,755.72; is that correct?

A. That is correct.

Q. Now, did this require any further adjustment of any sort?

A. It did. This Exhibit "Z" was computed before the experimental expenses had been definitely determined by Mr. Sherts; therefore, it was necessary for me to recalculate, excluding from cost such items as were changed in accordance with our Exhibit "K." I have prepared another sheet which shows, by excluding the items termed "Not Operating Expenses," it would increase this profit of $164,755.72 by $1679.83.

Q. And that was due only to the fact that you stated, that when Mr. Sherts testified and produced Exhibit "K" it included a few items which should have been excluded from cost and which at the time you made your computation you did not exclude; is that right?

A. Yes, sir.

Mr. Christy: Sheet last produced by the witness offered in evidence and marked Exhibit "AA."

Mr. O'Shea: Plaintiff's counsel asks the same privilege with regard to reservation of objections.

Q. Did you prepare Defendants' Exhibit "K," to which you have referred, and as to which Mr. Sherts testified?

A. I did.

[fol. 783] Q. Does it agree with the account of the defendants' books called the "Experimental Account"; that is, does it include all the items in that experimental account?

A. It does.

Mr. Christy: Defendants' counsel offers in evidence the account heretofore identified as Defendants' Exhibit "K," and it is marked Defendants' Exhibit "K."

Q. Are you personally able to state whether or not your list of sales in Exhibit "Z" is in agreement with the list

of sales put in through Mr. Sharpe as Plaintiff's Exhibit No. 9?

A. They are the same.

Q. Now, Mr. McHenry, I have asked you also to give us a statement of what the Plate Glass Company's books show as to the proper proportion of its selling costs which belongs to its sales of infringing Duplate. Have you made such a statement, and will you produce it?

A. I have. (Witness produces statement.)

Mr. Christy: Statement last produced by the witness is offered in evidence as Defendants' Exhibit "BB."

Q. On this Exhibit "BB" you have shown in the first line the items as given by Mr. Sharpe actually paid to the Pittsburgh Plate Glass Company as commissions for sales of infringing Duplate.

A. It is the commission as shown by our books, and I believe it corresponds with the items Mr. Sharpe showed.

Q. Now, in the second line of this Exhibit "BB" you have given items for each year, and in total, called "Expense incurred by P. P. G. Co.". Will you state how these items were computed?

[fol. 784] A. The expense includes the salesmen and other expense of the general office; also the proportion of selling expense of the warehouses. In our manner of accounting we charge against plate glass sales at the warehouses the expense incurred in handling and selling glass. Duplate was included with the charges for plate glass, therefore I took the percentage that Duplate sales were of the total to get the amount applied in this statement against Duplate sales. The fact is, that more stress was put on Duplate than plate glass sales, so that my proportion would be low instead of high.

By Mr. Smith:

Q. You mean by that, there was more selling effort put on Duplate than plate glass?

A. Yes, there was.

By Mr. Christy:

Q. What was this percentage that you took to reach these figures you have given on Exhibit "BB"?

A. The percentage of sales of Duplate and plate glass.

Q. In feet, or in dollars and cents.

A. It is based on money value.

Q. And not on square feet?

A. Not on square feet.

Q. Now, as I understand it, you took this proportion on all of the warehouses' selling expense, is that right, including plate glass and Duplate?

A. It is on the plate glass. The amount charged on plate glass is proportioned between plate glass and Duplate.

Q. But Duplate was originally included in the plate glass; that is what I mean?

A. It was.

Q. Now, what did you do as to the salesmen in the office? [fol. 785] A. The salesmen's salaries and traveling expenses would come out of general office.

Q. And was that proportioned in the same way, or taken absolutely?

A. That was a direct charge.

Q. So that the aggregates of these two charges will make up the figures which you gave in the second line of Exhibit "BB"; is that correct?

A. Yes, sir.

(Cross-examination of Mr. McHenry suspended for the present.)

* * * * * * *

NOTE: There appeared at this point in the Record the testimony of Mr. Tinstman explaining the efforts of Duplate Corporation to salvage material from defective product.

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P. F. DATZ, a witness produced on behalf of defendants, having previously been sworn, testified as follows:

Direct examination.

By Mr. Christy:

Q. You have been here and heard the testimony of Mr. Tintsman have you, Mr. Datz?

A. Yes, sir.

Q. He testified in substance that after the end of the accounting period in this case the company had on hand about 5,604 square feet of returned Duplate which it held for separation and recovery of the plate glass. Have you any data of the experience of the company in recovering plate glass from returned Duplate which will enable you to testify as to the feetage of plate glass recovered from this quantity of Duplate returned?

[fol. 786] A. Yes, sir.

Q. Will you tell me what that data is?

A. The efficiency department retain a record of all of the glass that was separated in the period of March 1931 to May 1931.

Q. Now, just a question there, if you will permit me: Was that the time in which the company separated returned Duplate for the purpose of recovering the plate glass?

A. Yes, sir.

Q. Now proceed.

A. Included in this data was the recovery of this 5,604 square feet of Duplate. The amount of polished plate glass recovered from this 5,604 square feet of Duplate was 5,976 square feet of polished plate glass, with a value of $772.78.

Q. Now how do you reach this figure of five thousand odd square feet of plate glass recovered?

A. The amount of Duplate, 5,604 square feet, represents 11,208 square feet of polished plate glass. From the records in the efficiency department we have a loss in separating this glass of 32½ per cent. This loss in square feet represents 3,643 square feet of polished plate glass. After the glass is cut to pattern, during this operation we have an additional loss of 21 per cent., equalling 1,589 square feet, allowing a net figure of glass used in production, applied on orders, 5,976 square feet of polished plate glass.

Q. You mean, that from the experience of this efficiency department, in this period where separation was carried on, you deduced the result which you have given; is that correct?

A. That is correct.

Q. And how many square feet of Duplate were, in fact, separated during that period?

A. The amount of Duplate glass separated during this period is 11,730 plates.

[fol. 787] Q. Somewhat over 40,000 square feet; is that correct?

A. Somewhat over 40,000 square feet of Duplate.

Q. Yes. And that Duplate, I suppose, came partly from factory rejects and from Duplate manufactured with casein as a binder, as well as from this particular 5,604 feet of your gelatine manufacture; is that correct?

A. Yes, sir.

Q. And 40,000 square feet of Duplate, which you say was separated, did contain about 80,000 square feet of single sheet plate glass; is that right?

A. Yes, sir.

Q. When you were here on the stand last, you and Mr. McHenry were both asked as to the number of square feet of pyralin, recorded as pyralin sheets, shown in your losses of pyralin in what you call the pyralin examination department; is that correct?

A. That is correct.

Q. Can you give us that data now?

A. Yes, sir.

Q. Will you please do so.

A. (Witness produces sheets.)

Q. These sheets which you have just handed me show the figures from which you obtained, from the month of October 1929 to May 1930, inclusive, losses in your pyralin examination department, reduced to square feet; is that correct?

A. Yes, sir.

Mr. Christy: The sheets last produced by the witness are offered in evidence as Defendants' Exhibit "Q-1."

(No cross-examination.)

[fol. 788] H. B. Higgins, a witness produced on behalf of the defendants, having been previously sworn, testified as follows:

Direct examination.

By Mr. Smith:

Q. Mr. Higgins, did the Fisher Body Corporation, prior to the accounting period, have a plate glass plant of its own?

A. Yes.

Q. And in that plant did it make any laminated glass, or was it all plate glass?

A. It was all plate.

Q. Was this plant which you have mentioned, formerly owned by the National Plate Glass Company?

A. Well, the National Plate Glass Company was a subsidiary of the Fisher Body Company, and the Fisher Body Company obtained its plate glass from the National Plate.

Q. I think you testified before in this hearing, as I recollect, that along in 1928 the Duplate Company made a price of $1.75 per square foot for Duplate to the Fisher Body Corporation. Is that what you did say before?

A. That is correct.

Q. Why did the Duplate Corporation make that price to the Fisher Body Corporation?

A. We had an idea, and a policy, that the way to introduce laminated glass was to persuade some prominent automobile manufacturer to adopt it as standard equipment. The adoption of the Ford windshield did not serve the purpose, because the product was not satisfactory, and we thought that if some other manufacturer, notwithstanding Ford's experience, adopted it as standard equipment and gave it its sanction, it would do more to promote the manufacture and sale, and general acceptance of it, than any amount of advertising we could do. So, consequently, [fol. 789] we endeavored to persuade the Fisher Company to put it in, and we named the price of $1.75, frankly, because that was the best price we could get.

Q. Will you state whether or not you encountered any sales resistance in endeavoring to interest the automobile manufacturers in laminated glass?

A. Why, a good deal of sales resistance. None of them were willing to pay the price that was being asked for it. At that particular time—that was in the spring or early summer of 1928—I think all the automobile manufacturers were coming around to the viewpoint that ultimately safety glass was going to be an acceptable product for an automobile, that it was a distinct contribution to the safety of automobiling—all of them personally had it in their own cars—and we believed all of them felt that ultimately it would be adopted as a standard product in automobiles, and yet the price was more than they could afford to pay,

and at that time no demand had been developed to convince them that they would derive from the adoption of it a corresponding sales advantage. It was not difficult to sell the glass if we had had a price for it—the price was the hurdle.

Q. When you say "no demand had been developed" for it, do you mean, no demand among the purchasers of automobiles?

A. Among the automobile public going to the agents. They didn't talk about it. They were not acquainted with the fact that there was such a product as safety glass.

Q. And did you feel that it was necessary to make this low price in order to introduce this product and get automobile manufacturers to buy it?

A. I not only felt it was. I knew it was. And prior to the time I saw Mr. Fisher, the Triplex Company had talked to Mr. Fisher and endeavored to persuade him to put it [fol. 790] in as standard equipment. He had definitely declined it because the price was more than he could afford to pay, and more than he was willing to pay. And, so far as the Fisher Body was concerned, there was no opportunity for the Triplex Company. or any other company, to sell safety glass for models that were being put on the market that summer of 1928—their models for 1928 and '29—so the business was gone at that time. So we stepped in and we quoted a price that was lower than Triplex had quoted, there is no question about that, but it didn't deprive the Triplex of any business because they had been refused already.

Q. In this hearing before the Master on May 8, 1931, Neilson Edwards testified as follows (page 159): "In 1925, I tried to sell the Benedictus patents to the Pittsburgh Plate Glass Company; talked to Mr. Wherrett and Mr. Higgins and Capt. Brown, who is now dead, and they told me that they wouldn't be interested in the patents, because they didn't think that the laminated business was ever going to amount to a big enough industry to interest a company the size of the Pittsburgh Plate Glass Company. We talked to the du Pont Company along the same lines, and got the same reaction. I also talked to the Standard Plate Glass Company." Have you recollection of having a conversation with Mr. Edwards in 1925?

A. I recollect a conversation, Mr. Smith, but I cannot say it was in 1925. It was prior to the time he organized

the Triplex Company, and I rather think he did offer us those patents; yes.

Q. Do you recollect saying, in substance, that you did not think the laminated business was ever going to amount to a big enough industry to interest a company like yours?

A. I do not recollect it, but I would not be at all surprised that that is correct, because at that time our re- [fol. 791] search work on laminated glass had not at all convinced us that we would be able to make a produet that would be suitable; pyralin had not been developed to the point that it was subsequently, the glass discolored and in a short time became unsightly and unsalable, and we did not see at that time that it would be possible to produce a product that would be commercially satisfactory. So it is quite likely I did make that statement.

Q. Mr. Edwards also testified at that same hearing, and I am reading from the transcript on pages 166 and 167, as follows: "Q. Do you recall a conversation with Mr. Wherritt and Mr. Higgins, on or about October 5, 1928?" "A. Mr. Haskell and I visited them at the offices of the Pittsburgh Plate Glass Company here in Pittsburgh, and discussed the general situation in regard to selling laminated glass. They took the position—they told us that they were going to sell laminated glass to one automobile manufacturer in each price class, irrespective of what they got for the product, on the theory that if they got one manufacturer in each price class to adopt laminated glass, the other people would have to follow, and they didn't know what it cost them to make laminated glass and didn't know how to set a price. So they were going to take the business at whatever price they could get, and then hope to make money out of the other people that came to them later. They told us then that they were selling at prices which were very much below the prices we had been quoting. We complained of their having taken business away from us on price. They told us they knew that was so. We also told them that to the best of our knowledge, they were using our process, and that that wasn't fair competition. They denied that they were doing that." Before asking you about the details of that conversation do you remember being present with Mr. Wherrett when this con- [fol. 792] versation took place on or about October 5, 1928, with Mr. Haskell and Mr. Edwards.

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A. I do remember a visit from them, and a talk with them; I don't remember that particular date, but it was after we had taken the contract with the Cadillac.

Q. Did you—either you or Mr. Wherrett—state to them in that conversation, that you were going to sell laminated glass to one automobile manufacturer in each price class, irrespective of what you got for the product?

A. I did not.

Q. Did Mr. Wherrett say anything like that?

A. He did not.

Q. As a matter of fact, did you endeavor to sell to one manufacturer in each price class, regardless of price?

A. We did not.

Q. What was the only manufacturer—if there was only one—to which you did endeavor to sell at a low price?

A. Cadillac Company.

Q. That was this Fisher Body Corporation?

A. Fisher Body Corporation.

Q. That price was $1.75 a square foot, to which you have already testified?

A. Yes, plus the edge work. Now, may I say something, Mr. Smith?

Q. Say what you please.

A. As I have said before, we felt that the best way to introduce safety glass was through its adoption by the automobile manufacturers rather than through advertising, and I was constantly advocating that policy, not only in our own organization but in my talks with Messrs. Edwards and Haskell, and in my talks with the Triplex Corporation and the Libby-Owens Corporation, and our other competitors. It was our general policy, and I felt, and my associates felt, it was advantageous to the industry [fol. 793] as a whole to give this product the sanction of the automobile manufacturers through the use of it in their own product. That was a salient feature in our policy and in order to accomplish that, we did quote, regardless of our cost, to the Cadillac Company, and we made that contract. But, as I have pointed out before, at that time laminated glass was being accepted by the automobile manufacturers; they were beginning to realize its value, and were beginning to feel that ultimately it would be standard in automobile production. Now, had we had such a policy as Mr. Edwards spoke of there, it

would have been a very simple thing to have gone to those other manufacturers and to have made such contracts, because they were in the mood for it, they were willing to push it, but it was the price—that was the barrier. If we had adopted the policy of selling regardless of price, that barrier would have been removed, and it would have been a simple thing to have removed that barrier. The fact that we did not do it was sufficient evidence that Mr. Edwards' testimony is not correct. I am sure I advocated with Mr. Edwards and Mr. Haskell, the desirability of having it introduced with the manufacturers, and to have one manufacturer in each price class take it, but I never told them, nor did Mr. Wherrett tell them, that it was our policy to pursue that course.

Q. As I understand you stated then to Mr. Edwards and Mr. Haskell that that would be a good policy, for Triplex to try to interest some automobile manufacturers, so that they would spread the product by using it, instead of by advertising?

A. I did.

Q. Were you then endeavoring to put Triplex out of the business?

Mr. O'Shea: I object to that as calling for a conclusion. [fol. 794] The Master: We will hear the answer subject to Mr. O'Shea's objection.

A. I was merely stating my views as to the best policy for the industry to adopt to assure the success of the product. There was no selfish motive in it whatever.

Q. As a matter of fact, if the Triplex had succeeded in having some automobile manufacturer adopt this as a standard in automobile production, would that have helped the whole laminated glass business?

A. It would have helped. As an example of how this worked out: After the Cadillac Company had adopted it, and had their car on the market for six months or more with laminated glass in it, the Packard Company felt it was necessary for them to adopt it, and they did decide to put it in. Purely as a result of the Cadillac competition, the Packard Company submitted inquiries to the Triplex Company, Libby-Owens Company, the Indestructo Company, and the Pittsburgh Plate Glass Company. The Libby-Owens Company were the only ones that benefited,

because they took this business at a price lower than anyone else quoted.

Q. As I understand, Libby-Owens Company entered this field in 1929?

A. 1928; the latter part of 1928.

Q. And from that time on, were they vigorous competitors in the business?

A. Very vigorous competitors, and practically every decline in price that occurred from that time on was initiated by the Libby-Owens Company.

Q. And, I suppose, when your competitors cut the price, you had to cut your price also.

A. Yes.

A. At this same hearing Mr. Haskell testified as follows: (I am reading from the transcript, pages 192 and 193. This [fol. 795] was on direct examination by Mr. O'Shea.) (In the transcript, on the same page, 192, above the question that I am about to read to you, reference was made by the witness to a conference between Mr. Haskell—that is the witness—and Mr. Edwards, and Mr. Wherrett and yourself, Mr. Higgins, in or about October, 1928, and with reference to that conversation Mr. Haskell testified as follows): "Q. Give me the conversation between you and Mr. Edwards and Mr. Wherrett and Mr. Higgins." "A. Mr. Edwards and I saw Mr. Higgins and Mr. Wherrett with the idea of finding out what their future policies would be." "Q. Just state the substance of the conversation." "A. The substance of the conversation was, 'You fellows have come into this laminated glass business and you have taken business from our previous customers, apparently at any price. We would like to know just what your future policy is, as to the merchandising of laminated glass;' and they made the statement—Mr. Higgins, I believe, was the actual spokesman—that it was to be their policy to get one car in each price class. That is, something in the lower price class, like Chevrolet, and something in the middle price class, like Buick, Nash and Chrysler, and something in the higher price class, like Pierce Arrow, Cadillac, Lincoln—one of those—to adopt safety glass all around. They had offered to sell at various prices, Mr. Higgins said, and they expected to keep after the situation until they struck a price at which they thought these men would be interested, and they felt that when they once got a car completely equipped

with laminated glass in each of those price classes, that the rest in that price class would have to follow. In which case they could get a decent price from those other manufacturers, once they had been forced into the use of laminated glass through one of their price class adopting it.' Did you or Mr. Wherrett state, in substance, that it was to be [fol. 796] your policy to get one car in each of those price classes mentioned in this answer?

A. We might have told them we would like to get a contract with one manufacturer in each price class, but not irrespective of price, as Mr. Edwards stated.

Q. Did you say you expected to keep after these different class cars until you struck a price at which these men would be interested?

A. We did not.

Q. Did Mr. Wherrett say anything like that in that conversation?

A. He never did.

Q. I think it has been testified at some point in this record—I cannot give the reference just now, but by someone on behalf of the plaintiff—(I believe it was in October, 1929, Mr. Shrum)—that the Duplate Corporation employed an agent named Calhoun, who had formerly been employed by the Triplex Company. Do you know about that, Mr. Higgins?

A. Yes, I do.

Q. Did the Duplate Corporation employ Mr. Calhoun?

A. They did.

A. Mr. Calhoun came to me in the late summer of '29, I think, or the early fall, and said that he had had some differences with Mr. Haskell which had led him to decide to leave the employ of the Triplex Company, and he asked if in our business we didn't have some place where we could use him. I asked him if he was still in the employ of the Triplex Corporation, and he said he was. I told him I could not talk to him, that the Company had a policy of not employing people from our competitors, not taking their employees away from them, and that I could not do anything at all with him without knowing that it would be perfectly satisfactory to Mr. Haskell. I do not recall whether I [fol. 797] telephoned Mr. Haskell, or not, but subsequently I heard from Mr. Calhoun telling me that Mr. Haskell had discharged him, that he was free of any obligations to the

Triplex Corporation, and he would like to talk to me regarding a position. And then I am quite sure I telephoned—I might have written, but I believe I telephoned Mr. Haskell—to find out if that was so, and if, in the event it was so, he would have any objections to our employing Mr. Calhoun—because at that time we were looking for someone or other to develop the business with the bus companies and the taxicab companies, and similar people who were prospects for laminated glass; Mr. Judson was being overworked with the automobile manufacture and we needed to give him help, but I did not want to engage him unless it would be satisfactory to Mr. Haskell. Mr. Haskell told me it would be satisfactory; consequently, we employed him.

Q. Now, did you come in contact with Mr. Calhoun after he entered the employ of the Duplate Corporation?

A. Yes.

Q. Did you at any time ask him any of the business secrets or other secrets of the Triplex Company?

A. Never made any request for any information, and Mr. Calhoun always observed all the proprieties of the case; never mentioned once any of the business of the Triplex Corporation, or any account he had there; never gave any information of any kind, nor did we ask for it.

Q. Now, there has been testimony in behalf of the defendant in this case, to the effect that in the manufacture of the one-eighth-inch plate glass there was a special cutting loss, and I believe the testimony is, that that cutting loss in cents for the year 1928 was .01548; in the year 1929 it was .01621; and in the first five months of 1930 it was .02590. [fol. 798] You understand from that, Mr. Higgins, that this testimony is, that in 1928 this special cutting loss was a little over 1½ cents a foot; in 1929, a little over 1 6/10 cents; and in 1930, over 2½ cents a foot—by that I mean a square foot?

A. Yes, sir.

Q. Are you familiar in a general way with the sizes of plate glass that had to be cut by this automobile trade?

A. I am.

Q. And in your judgment was there, or was there not, this special cutting loss?

A. There was.

Q. Why do you say that, Mr. Higgins?

A. Perhaps the best way for me to explain it is to draw an analogy between the plate glass business and some other kind of business. Let us suppose that the furniture manufacturer is asked to make ten thousand desks just like this one. That would be an ideal order for a furniture manufacturer. He would set his machinery for it, he would turn them all out alike, and he would be able to produce them at an ext-aordinarily low cost. Instead of an order for ten thousand desks like this (indicating), let us suppose he was given an order for ten thousand desks, each one different. It would be an impossible order that no furniture manufacturer would figure on, because each one would be an especially made desk. Now, our business is an exact reverse of that. The most expensive order that we have to execute, is an order calling for large quantities of one size; the most economical order that we have to execute, is an order calling for a large number of plates, each one of a different size.

Q. Now, why is that?

A. May I have a piece of paper?

Q. (Witness handed sheet of paper.)

A. Now, I wonder if you understand that in making plate glass we do not start out to make the size that we sell. If [fol. 799] we have an order for 10,000 windshields, 14 x 44, we never start to make 14 x 44's—the glass is rolled in a sheet, is laid on a table, and our entire effort is to produce at the wareroom, where the glass is cut out, the largest light of glass that we can. Now, that glass comes through the process with numerous defects. At the Creighton factory the standard size is about 70 x 130.

Q. Inches?

A. Inches. Now, I have just made a few marks on this sheet to indicate defects. These defects may be defects of metal—I mean by that, bubbles, blisters, as we call them, or stones from the batch, or stones from the pot, or cuts from the emery, or bloach—that is a bloach where it is completely polished—or any one of a dozen or fifteen causes which make the plate in one respect or another imperfect. And when that plate is received in the wareroom, before cut on order, these defects must be eliminated. I have put those in at random. Here is a light 70 x 130 with those defects in it; now those defects must be cut out; the cutter has his choice of numerous ways of cutting, but, in any

event, he must eliminate them in some way. This is cut, we will say, like this (indicating by drawing on sheet of paper); this is cut across there; this one down here; and then two may be cut out that way, throwing this strip away. So, instead of having a light 70 x 130, we have all these pieces; and out of these pieces we must cut 10,000 lights 14 x 44 (if that is what the order calls for). Now, it is obvious, if we had an assortment of orders, we would have an order for each piece shown in this diagram, in which event there would be no cutting loss whatsoever; we would have, with the exception of this strip, which is thrown away, practically 100 per cent yield from the plate. But when these must all be cut to 14 x 44, using an extreme example, it is quite obvious there is going to be a very large cutting loss there, and there will be some pieces that [fol. 800] are thrown away, that cannot be used—they will be smaller than 14 x 44, smaller than any size we have on order, the residue, and that is thrown into the cullet bin and turned into batch. Therefore, the greater concentration of orders on a narrow range of sizes, the greater the cutting loss, always; and the greatest concentration on sizes that we have comes from the automobile business.

Q. Now, did the automobile orders that your company has received in this accounting period, did they comprise a large number of different sizes or a small number of different sizes?

A. There is a relatively small number of sizes. And I may add this, please? They were largely windshield sizes, because, with the exception of the Cadillac contract, our efforts to sell laminated glass were successful largely with respect to windshield orders, not body glass—the manufacturers didn't go all around—those that we sold.

Q. So, as I understand it, these automobile orders were in a narrow range of sizes, compared with the plate glass orders generally?

A. That's correct.

Q. And that, therefore, there was an unusual cutting loss in getting the sizes out of these large sheets?

A. That is correct.

Q. And is that the basis on which you claim this special cutting loss?

A. It is.

Q. And, in your judgment, is that a sound and fair claim?

A. Perfectly sound; and a fact.

Q. Has your company ever made any quantity of laminated glass for cars in the cheaper grade, like the Ford or Chevrolet?

[fol. 801] A. No. You are referring now to the accounting period?

Q. Yes.

A. No, we have made none at all.

Q. Not during the accounting period?

A. No; not that I recall.

Q. Now, how long have you been connected with the sales organization of the Pittsburgh Plate Glass Company?

A. Here in Pittsburgh, or——

Q. All told.

A. Twenty-seven years.

Q. How long have you been in charge of that department?

A. Fifteen years.

Q. That is, during the period of fifteen years you have outranked every other employee in that department?

A. Yes, sir.

Q. Have you made it a practice to observe the condition of laminated glass as you see at present in automobiles—during this accounting period, and subsequently?

A. I have.

Q. It has been a matter of interest to you, Mr. Higgins?

A. A matter of lively interest to me.

Q. In your capacity as vice-president in charge of the selling department of the Pittsburgh Plate Glass Company?

A. Yes.

Q. During this accounting period, and subsequently, have you ever had your attention particularly directed to the Ford windshields, by what you saw in cars on the public highways and elsewhere?

A. Yes, indeed.

Q. Once, or more than once?

[fol. 802] A. Oh, hundreds and hundreds of times.

Q. And what did you observe as to the character of these windshields that the Ford Company put on their cars beginning in 1928 and continuing until after the accounting period?

A. They were badly discolored, they were full of bubbles, and many of them had bad edge separations, sometimes extending away into the center of the light. That was very

common knowledge, Mr. Smith, in the automobile industry and in the glass industry. And there has nothing happened, nothing has happened to the laminated glass business that has hurt it so much as that Ford windshield; hundreds of thousands of them were replaced with plate glass by our own warehouses, and by our competitors in the glass jobbing business, for automobile owners who simply could not be persuaded to have another one put in—they didn't want to have anything more to do with the product.

Q. Did the Pittsburgh Plate Glass Company replace a large number of these Ford windshields?

A. Tens of thousands of them.

Q. And did Libby-Owens replace any?

A. No, because they are not in the jobbing business, but they did indirectly through their jobbers.

Q. State whether or not these manifest defects in this Ford windshield were not only observed by you, and others in your company, but a matter of common knowledge and common discussion throughout the plate glass industry.

A. Yes; at the jobbers' meeting it was rather facetiously remarked that if it were not for the Ford windshield replacements the jobbers wouldn't have any business.

Q. Can you go out this afternoon where there are parked in Pittsburgh a number of Ford cars, including those equipped with Ford windshields during the accounting pe-
[fol. 803] riod, and point out to the Master a large number of those defective windshields?

A. I am sure I can. May I say something else that occurs to me, Mr. Smith?

Q. Yes, sir.

A. If that Ford windshield, or that non-shatterable windshield in the Ford car, had been an advantage to the Ford Motor Company, that certainly would have been reflected in the product of cars that were competing with Ford, because there is no more highly competitive business in the United States than the low-priced automobile business. Now, no one of the other manufacturers of low-priced cars would have been content to have seen Ford with an advantage of a windshield. If the manufacturer of the Chevrolet car had felt that the non-shatterable glass in the Ford windshield was a salient advantage to the Ford Motor Company, you certainly would have seen a non-shatterable windshield in the Chevrolet car; yet, to this day, never has there been

used a foot in the Chevrolet, never a foot in the Essex, nor a foot in the Overland.

Q. You mean, not a foot of laminated glass?

A. Not to this day. Possibly some of the high-priced models may have it as optional equipment, but I am talking about standard glass furnished by the manufacturers.

By Mr. Christy:

Q. How about the New Plymouth?

A. You mean, for next year?

Q. Yes.

A. The New Plymouth will have it as standard equipment; also as standard equipment in the General Motors cars for next year. That is the result of the work recently done to prevent the discoloration that made the Ford windshield so bad—it is because that has been overcome—that is what has made the laminated glass business so bad.

[fol. 804] A. As I understand your last answer, you state that the Plymouth car for 1933 has laminated glass in the windshield?

A. As standard equipment; yes, sir.

Q. And I think you said that all of the General Motors cars for 1933 will have laminated glass in the windshield?

A. Laminated glass.

Q. Laminated glass in the windshield as standard equipment?

A. Yes, sir.

Q. Now, why is it, if you know, that these cars, such as Plymouth, have come to use laminated glass in the windshield for 1933?

A. Because, largely, the difficulty of discoloration has been overcome, and because the price is down to the place where they are willing to pay for it. They are now getting it for a dollar a foot.

Q. Now, taking a car in a grade higher than the Ford or Chevrolet, take the Buick automobile, has that been one of the largest sellers, if not the largest seller in its price class?

A. It has been the largest seller.

Q. In its price class?

A. Yes.

Q. Up to and including the year 1932, has the Buick car

ever had, as standard equipment, a foot of laminated glass in it?

A. Never has.

Q. But, you say, for 1933 they will have it in the windshield?

A. For 1933 it will be in the windshields of all Buicks, and in the bodies of the high-priced line, as standard equipment.

Q. Such as the LaSalle?

A. No; the high-priced line of the Buick.

[fol. 805] Q. In other words, Buick makes different priced models?

A. Yes. Now, also, Mr. Smith, it might be interesting to know that all Chryslers, all Dodges and all DeSotos next year will have safety glass as standard equipment in the windshield.

Q. Have any of those last three cars that you mentioned had laminated glass as standard equipment in any part of the car up to this time?

A. No.

Q. Are they all large sellers?

A. Very large sellers.

Q. Isn't it a fact that the Chevrolet has consistently outsold the Ford in recent years?

A. I am not sure about that; it has taken a consistently larger percentage of the low-priced business, but I am not sure that it has outsold the Ford.

Q. I see. Now, do you know anything of the experience of the Nash Company, with the use of laminated glass? Did they ever adopt it for a time?

A. Yes, Nash adopted it, I think, in the fall of '28, or in the spring of '29, I have forgotten which, as standard equipment in two of their high-priced lines; they also made models all different, in different price classes, and they undertook to promote the use of it—they listened to our arguments about it; they used it for approximately seven months, I think, and they dropped it because they said, so far as they could determine, there was no sales advantage and that, consequently, there was no reason for continuing to spend the extra money for it.

Q. It is in evidence in this case that the Pittsburgh Plate Glass Company gave Duplate a 10 per cent reduction in the price, as compared with the price to the trade generally. Was that true?

A. It was, after a certain date.

Q. Was that about June, 1929—if you recall?

[fol. 806] A. I think about that time, yes.

Q. What was the reason for that price reduction made by the Pittsburgh Plate Glass Company to the Duplate Corporation?

A. The Duplate Corporation was a sick baby, it had the rickets and we had to do something for it. That was the only reason we gave it 10 per cent concession on glass; and the du Pont Company gave it 10 per cent concession on pyralin.

Q. Was that concession on pyralin also given about June 1, 1929?

A. As I recollect it, the price was not changed until later, but antedated to the same time we applied the 10 per cent concession on plate.

Q. In other words, they credited Duplate back to June, 1929?

A. At the time we started, yes.

Q. Now, there has been evidence in this case that the Duplate Corporation paid the Pittsburgh Plate Glass Company a commission of 5 per cent on the sales of Duplate for a time, and afterwards that was reduced to 3 per cent. Will you please tell the Master, in your opinion, whether or not those commissions were fair and reasonable, and not excessive.

A. They were fair to everyone except the Pittsburgh Plate Glass Company. When we organized the Duplate Corporation, it was understood that the Pittsburgh Plate Glass Company should have the exclusive right to sell the product, because we had contacts with the automobile trade which had been maintained for years; we had men who knew the automobile organizations intimately, and we could see no use in incurring all the expense of building up a new and a green sales department to call on the same people we were selling, and had been selling for years. But the arrangement as to compensation was left for later determination. When we began to sell Duplate I talked with [fol. 807] our associates of the du Pont Company and told them I didn't know what it was going to cost to sell it, it was a new product, and it costs money to introduce a new product, and I would be glad to have the benefit of their suggestions. They declined to make any suggestions; they said

we knew more about it than they did, and whatever we said would be right and fair would be perfectly agreeable to them. So I set the commission, personally, at 5 per cent. It was inadequate, because we were doing an enormous amount of work; not only did we have quite a personnel here at Pittsburgh, but we had a special man at Minneapolis, Chicago, Detroit, St. Louis, Pittsburgh, Philadelphia, Boston and New York, and those men were devoting a lot of time to it. We have sixty-seven warehouses, all of whom stocked the product right away, regardless of whether it had any business for it or not, and that represented quite an expense. We had 500 salesmen operating out of our warehouses, all of whom were trying to sell it to the garages and replacement shops, and everyone that might be interested in it. There was no possible way of determining what it would cost us to sell it, and 5 per cent was certainly a modest compensation for all the effort we were putting in it, but I wanted to "lean backwards," because I did not care to have our associates of the du Pont Company withhold any mental reservations whatsoever with regard to the charges we were making for our service as sales agents. Consequently, it went on that way for a while, and when the showing of the Duplate Corporation was so bad we reduced it to 3 per cent, for no other reason in the world, and we gave them 10 per cent on plate glass. Of course, 3 per cent and 5 per cent are nothing but brokerage commissions. If we have a jobber who sells a carload of glass, he takes the order and sends it in to us and we give him a commission of 3 per cent, he does nothing but take the [fol. 808] order; the actual product, he never sees it, never touches it, yet he gets 3 per cent commission. We were introducing a brand new product which required an enormous amount of work, work by intelligent and expensive men, for the price which we were allowed as a commission. And, aside from all that, we were carrying all the credit risk, assuming all the credit losses there were.

Q. Mr. Higgins, let us assume that the number of square feet of Duplate sold during the accounting period—after taking out of the sales the returns and replacements—were substantially as follows: In the year 1928, 962,448 square feet of Duplate; in the year 1929, 2,019,360 square feet of Duplate; in the first five months of 1930, 617,728 square feet of Duplate. Will you please state whether or not, if

the Duplate Corporation had not been selling any laminated glass whatsoever, the Pittsburgh Plate Glass Company would have been able to sell a number of square feet of one-quarter inch or three-sixteenths inch plate glass equivalent to the number of square feet of Duplate which I have just embodied in this question.

A. I undoubtedly think we would. All the customers that we had for Duplate were regular customers of ours; most of them were exclusive customers who bought from us almost entirely, but we were not a regular source of supply for the Fisher Body Company. I think, unquestionably, we would have sold the same number of feet in plate glass that we sold in Duplate to all the other manufacturers, aside from the Fisher Body Company. Now, we have at times sold quite substantial amounts to the Fisher Body Company, but we cannot honestly claim that we would have sold them as many feet of clear glass, or plate glass, as we sold of Duplate; we might have, but I would not say we would have.

[fol. 809] Q. Leaving out the sales of Duplate to the Fisher Body Corporation, would you have sold to other customers the same number of feet of plate glass as the area in feet that you sold in Duplate, which, without repeating them all, was 962,448 square feet in 1928?

A. Yes; I am sure we would have.

Q. Now, assuming that the sales to the Fisher Body Corporation, including Fleetwood, in 1928, were 558,137 square feet of glass; subtracting that from the total square feet of Duplate sold in that year, leaves 404,311 square feet. Do you mean, in your opinion, you would have sold the last named amount of square feet in the form of one-quarter inch or three-sixteenths inch glass, if you had not sold any laminated glass at all?

A. I am sure we would have, because with those customers we were substituting one product of ours for another; they were already buying glass from us.

Q. Take the year 1929, and assume the sales of Duplate to Fisher and Fleetwood were 640,155 square feet; subtracting that from the area of Duplate sold to all people by the Duplate Corporation in that year, leaves 1,379,205 square feet. Do you mean that in your opinion you would have sold the last-mentioned number of square feet of the one-

quarter inch and three-sixteenths inch glass if you had not been selling laminated glass at all?

A. Yes.

Q. And similarly, in the first five months of 1930, assuming your sales of Duplate to Fisher and Fleetwood were 23,272 square feet; deducting that from the total Duplate sales in the first five months of 1930, leaves 594,456 square feet. Do you mean your company would have sold the last-mentioned number of square feet in the form of one-quarter inch and three-sixteenth- inch glass if you had not been selling laminated glass at all?

[fol. 810] A. Yes.

Q. Mr. Higgins, you spoke about the keen competition offered by the Libby-Owens Company during this accounting period in laminated glass. Have you ascertained the amount of sales of that product of the Libby-Owens Company?

A. Yes, I know approximately what they produced.

Q. Can you give us those sales in 1928, '29, and the first five months of 1930, separately?

A. In 1928 they made approximately 35,000 feet; in 1929, approximately 650,000 feet; and in 1930—I haven't the production for the first five months, but for the year their production was about 50 per cent. larger than ours.

Q. That was laminated glass?

A. Laminated glass—superficial feet.

Q. These figures represent the production of that article by the Libby-Owens Company?

A. The sales, the shipments of glass.

Q. Laminated glass?

A. Laminated glass—superficial feet.

Q. Square feet.

A. Yes.

E. E. TINSTMAN recalled.

Cross-examination.

By Mr. O'Shea:

Q. Mr. Tinstman, you have produced the credit memorandum covering receiving slip 445, and that credit memorandum I hold in my hand; is that correct?

A. That is correct; yes, sir.

Q. Are there any symbols, letters, or other indicia by which you can determine on the face of this credit memorandum, which you have produced, which shows to you the [fol. 811] shipping date of the glass for which a credit was given, as indicated on receiving slip 445?

A. No, sir; not on the credit memorandum.

Q. You have also produced a credit memorandum showing a credit given to the customer, and corresponding, as I understand it, to receiving slips Nos. 556 and 627; and that credit memorandum I hold in my hand. Is that correct?

A. That is correct.

Q. Are there any symbols, letters, figures, or other indicia on that credit memorandum which indicates the specific shipping date of the goods indicated thereon?

A. No, sir; it is based entirely on my letter accompanying that, so that they may know how to credit the glass. In other words, at a price during a certain period, is based solely on my report accompanying that, and you have a copy of that report.

Q. And that letter is with a series of letters which are marked in evidence here as Exhibit "CC"?

A. I believe so.

Redirect examination.

By Mr. Smith:

Q. Mr. Tinstman, while these two credit memoranda, concerning which you have been interrogated, do not have on the face of them any symbols as to date of manufacture, or shipping date, did you, or did you not, have such information as the basis upon which you made up these credit memoranda?

A. Precisely so; on the basis of my letter the credit is allowed, otherwise there would be no credit memorandum.

Q. And the letter, I suppose, is based on prices you had before you wrote the letter?

A. You have on file now one letter giving those dates on the basis of my inspection. The credit is allowed subse- [fol. 812] quently on the basis of the price that obtained during the period of manufacture and shipment.

Recross-examination.

By Mr. O'Shea:

Q. On this credit memorandum that you have produced showing the credit granted to Fisher Body Corporation, and covering the glass indicated on receiving slips 556 and 627, I notice an entry here stating as follows: "To cancel our invoice of May 13th on account of Order 'B', to replace rejects returned to Creighton." Does that phrase in there, "our invoice of May 13th", refer to the invoice to the customer, to wit, Fisher Body Corporation, for the goods which were shipped to them?

A. At that date. That simply corroborates my previous statement that all returns from the Fisher Body Corporation were carried in one ledger account, and the credit was not passed to the Fisher Body Corporation until such time as they sent us an order replacing an equivalent amount of feetage which, at the time of shipment, was invoiced to them, and a credit memo from this pool or reserve was issued at the same time.

Q. Then the phrase "invoice of May 13th" does not refer to your invoice of the glass that is shown on receiving slips 556 and 627?

A. It covers an equivalent amount of feetage which was evidently shipped on May 13——

Q. What year?

A. Of '31—covering a credit which was due Fisher Body but was not allowed until such time as they had specified on an order said equivalent amount of feetage.

Q. There is nothing on this credit memorandum then, that you refer to, indicating the original invoice under [fol. 813] which the glass, shown on receiving slips 556 and 627, were shipped?

A. Yes, there is; receiving slips 556 and 627 were attached to the copy of my report, the letter and the receiving slip being dated on the same day, so that those several papers tie in together to show the exact manufacturing date.

(Adjourned until Thursday, November 3, 1932, at 10 o'clock A. M.)

Thursday, November 3, 1932, 10 A. M.

H. B. Higgins recalled.

Direct examination (continued).

By Mr. Smith:

Q. Mr. Higgins, do you know anything about the efforts that the Saftee Glass Company made to induce automobile manufacturers to purchase laminated glass?

A. I know something about it, Mr. Smith, from the conversation I had with Col. Kolb, who owns that company.

Q. What did he say about that?

A. He told me that his intention in entering the laminated glass business was to provide protection for people who were in automobiles; that he became interested in it—and he had no occasion to form a company for financial reasons, because he is a rather wealthy man—and that it became a hobby with him. He had many friends among the automobile manufacturers to whom he appealed personally to see if he could not persuade them to adopt it as standard equipment in their cars, and he complained very vehemently over what he termed a very parsimonious policy of their [fol. 814] not being willing to spend a cent to protect people who bought cars from them. But the company did make a strenuous effort to introduce laminated glass in automobiles, but they gave up hope on account of the price; they could not persuade the automobile manufacturers to pay the price they felt they had to ask for it. So that the business developed into rather a specialty business, although it started out quite differently.

Q. Specialty—meaning goggles and things of that kind?

A. Goggles and things of that kind.

Q. Do you know whether or not this Saftee Glass Company did a very large business in goggles made of laminated glass during the War?

A. They did, yes.

Cross-examination.

By Mr. O'Shea:

Q. Mr. Higgins, if you recall, yesterday you drew a little diagram on a sheet of paper, illustrating the cutting of

one-eighth inch plate glass, stating that it was the custom of the Pittsburgh Plate Glass Company to start with a sheet of this glass approximately 70 inches x 130 inches, is my recollection of the precise figures given?

A. Yes, that is about right.

Q. And then across the middle of that page you had a strip of that glass with dots or marks on it—fabricating defects—manufacturing defects in that large plate of glass —stating at that time that in cutting up that glass, that strip with the defects on it were what you termed wastage or loss, using those two terms synonymously, as I recollect the testimony. Have I correctly stated the illustration that you made yesterday?

[fol. 815] A. Not quite, Mr. O'Shea; at least, I did not mean to create the impression that any particular strip on that drawing which I made would be thrown away. I was merely illustrating the manner in which glass was cut at the factory, and the difficulty that we had in applying the sizes obtained after the defects are eliminated, two orders in hand that call for concentration of sizes. Those defects which I put in there were put in at random, with no particular significance——

Q. —except to signify that practically all pieces of glass —that is, those large pieces, would have some defect in them which would have to be cut out; and where there was a defect and it could not be used for any available commercial purpose, it was thrown away into the cullet heap?

A. Not the defects, but strips arising through defects.

Q. That strip, in which defects appeared, would have to go to the cullet heap?

A. Yes.

Q. Of course, it is a fact, however, isn't it, that wastage or loss was absorbed in the cost of the glass—that is, taken into consideration in computing your cost of manufacture?

A. Some of it probably is, although I should prefer to have the accountants answer that, Mr. O'Shea. We have two different types of losses in a factory wareroom: One of them is the loss that arises through squaring and throwing away small pieces, and things that go into the cullet bin at the time the glass is cut; another loss arises through the accumulation of odds and ends that may subsequently be thrown away but not thrown away at the time—for in-

stance, we may have an accumulation of four-inch strips, or some other size, an accumulation of small glass which ultimately is of no value to us; and then there is still an- [fol. 816] other loss that arises through the subsequent sale, at a price very much below cost, of the residue that is accumulated during the cutting process.

Q. I think what you have just said has been fairly well brought out in the testimony of Mr. McHenry, but I was asking you if you did not know that all of that so-called shrinkage, or wastage, is absorbed in the manufacturing cost figure, which is given in this case at approximately 16 cents?

A. No, I do not think it is, Mr. O'Shea.

Q. You do not think it is.

A. I do not think it is.

Q. You think that even that defective strip, that you used in your illustrative drawing yesterday, is not absorbed?

A. Yes, I do.

Q. You think that is absorbed?

A. Oh, yes; that is what I referred to as the "squaring loss", which is taken in the factory wareroom. That type of loss, of course, would go into factory cost, and trimming of the edge would go into factory cost, and anything thrown away at the time the glass is cut would go into factory cost, but the other types of losses I have mentioned, would not, according to my understanding, although I would prefer someone more familiar with the details of factory accounting to testify as to that.

Q. Those odd pieces of glass, that you now describe as "other types of losses", were the rather large squares in your illustrative drawing of yesterday, as I understand it, and which had no manufacturing defects in them?

A. May I illustrate this a little more?

Q. Certainly.

A. As I recall this, we cut it up something like this—(witness indicating by drawing on sheet of paper): Let us suppose we cut it up like that. Now, this large square, that [fol. 817] you have just inquired about, would be one of the squares, one of the pieces which we would use for cutting the order in half. Now, suppose this is 40 x 40, and suppose we had to cut 18 x 32s out of it, let's say—now, you

would have a piece here 8 x 40 left over. That is the type of loss I am referring to.

Q. In other words, that is the type of loss that you would set aside with the possibility that you would find a customer wanting a piece of that?

A. Subsequent sale.

Q. And that type of loss you think is not absorbed in the original manufacturing cost?

A. I am very confident it is not; yes.

Q. And that type of loss is the type of loss, is it not, that falls into the category for which Pittsburgh Plate Glass Company is claiming .01548 credit for, in this accounting, in the year 1928?

A. I have not gone over any of these financial exhibits.

Q. You do not know what the claims are in here?

A. I am not familiar with the figures of the exhibits.

Q. Now, that type of loss that you spoke of there, that glass was sometimes sold to customers? In other words, you sometimes, for that kind of glass, did find a customer?

A. Yes.

Q. And it was your duty to put the selling price that that type of glass would bear, or carry?

A. Well, we have a published price for it.

Q. For that type of piece of glass?

A. That's right.

Q. When that type of piece of glass, which results from cutting in the factory wareroom, reaches what is called in the trade a 1 foot to 2 feet 8 inch bracket, that is a standard bracket for a piece of glass, is it not, in the industry?

[fol. 818] A. Yes.

Q. And you have regular selling prices for that?

A. Yes.

Q. It is a fact, is it not, that you did make that selling price, for that type of loss, higher than your manufacturing cost, in your endeavor to make a profit out of it?

A. Well, we always get the best price we can for all our brackets. But this particular size—to continue with this illustration here—8 x 40, is not a size that is in demand for any purpose. If that were eventually sold—taking this particular illustration here—it probably could be sold only by cutting it down to an 8 x 10, because there is no demand for an 8 x 40. You cannot think of any purpose for which a piece of plate glass 8 inches wide and 40 inches long could

be used. If it were cut down to an 8 x 10, it could be used in a cut up sash for a residence, let us say, or a French door, or something of that sort, but this type of size is always a size that is not in demand, and, consequently, a size that must be cut with still further shrinkage and sold generally at a price that is far below the cost—most always, if it is sold at all, at a strip size under one square foot.

Q. But it is always your endeavor to keep the selling price of that above the unit cost price?

A. It is never possible on those sizes, Mr. O'Shea, because they are in competition with window glass selling for 5 cents a foot, or 4 cents, or what not. Our price list, in evidence here, will show the prices at which these smaller sizes, under one square foot, are sold.

Q. Well, the price list, Mr. Higgins, is not in evidence, but it is testified to by Mr. McHenry that the average selling price of that type of glass—that is to say, from strip sizes up to glass within the standard bracket of from 1 foot to 2 feet 8 inches—was sold by your company at an average price of 20 odd cents. You think that is wrong?

[fol. 819] A. I don't know what the testimony is, Mr. O'Shea, but if it is that, it is inaccurate. I sent over, at your request after I testified before, three or four price lists which I thought were in evidence, and those price lists are not quite the same as today's, but they will give you the general picture of the relation between large and small sizes. Here is one, Mr. O'Shea; you see, those prices are 6, 7 and 8 cents a foot, and frequently, in order to move an accumulation of them, they are sold at less than those prices.

Q. In Mr. McHenry's testimony, Mr. Higgins, he was asked this question, and gave this answer, at page 920 of the transcript: "Q. As I understand it, even the average of all the glass included in this item entitled "Loss Cutting"—that is to say, both the glass within the 1' to 2' 8" brackets and the so-called strip sizes sold at an average of .20644?" His answer is: "That is true." Do I understand you to say now, you think that is not correct?

A. I do not see how it can be, Mr. O'Shea, although I do not want to dispute the testimony of the accountant. Our accumulation of small sizes is so large that I do not see how that could possibly average a price of 20 cents a foot, including strips.

Q. If your accounts on the books indicate that that is the fact, why, I assume you are willing to admit that it must be so—is that the substance of your last answer?

A. That would be equivalent to admitting that our accountants never make an error, and I cannot speak that way of them.

Q. You are testifying from recollection, whereas Mr. McHenry was testifying from the books.

A. I think I can get at this now. In the 1 foot to 2 feet 8 inch A and B brackets, there are sizes that carry a good price, and they are sizes that are in demand; for instance, some sizes that are used in the furniture industry that [fol. 820] might bring the average of all of this small glass up; but those sizes would not be the sizes to which I am referring here, because in Mr. McHenry's figure he has probably included all the sizes the Company has sold under the 2 feet 8 inch bracket. I think we gave the same answer.

Q. Look at that, Mr. Higgins (handing witness transcript of testimony), starting with "Yes, sir." "Now can you state——" (referring to page 920). As I understand it, you now feel that the testimony of Mr. McHenry that I have quoted to you is correct, in that it states an average sale price of the strips and the brackets, and all these other sizes of the types that you used in your illustrative drawing?

A. I think probably it is, Mr. O'Shea, although that price would not be the average price of the sizes I have been talking about here.

Q. Well, have you any figures on which you could compute the average price of the sizes which you are talking about here?

A. No, I have not; although in the main when they were sold at all, as I have said, they were sold as sizes under one square foot.

Q. Now, Mr. Higgins, from your familiarity with the automobile trade, and its connection with this laminated glass business, are you able to state whether or not the Lincoln Company adopted laminated glass as standard equipment on its cars?

A. Yes, it did.

Q. Do you know about when they adopted that laminated glass as standard equipment?

A. We did not sell Lincoln, but my recollection is, it was perhaps in '28.

Q. Is your recollection sufficiently keen to remember whether it was in the early or latter part of 1928?

[fol. 821] A. No, but it probably was at the time when they changed models; I don't know whether they changed models in the summer, or the fall, or spring.

Q. Am I correct in my recollection of your testimony that Cadillac adopted laminated glass of your manufacture in the year 1928?

A. Yes.

Q. And about what part of the year?

A. When they were changing models in the summer time —July.

Q. July, 1928?

A. Yes.

Q. Do you know whether or not Lincoln had adopted it prior to that, or about that time, or after that?

A. My recollection is, Mr. O'Shea, that it was about that time.

Q. About the same time?

A. About the same time.

Q. Can you state from your recollection as to when the Libby-Owens Company entered the laminated glass business?

A. The latter part of 1928.

Q. The latter part—you mean, some time after the last quarter?

A. Yes, I think it was in the last quarter of the year.

Q. That would be some time in October, November or December?

A. Yes, that is my recollection.

Q. Well, did Libby-Owens at that time build a new laminated glass plant, in 1928, or did they simply operate in their old plant?

A. I don't know, Mr. O'Shea, but I don't think Libby-Owens made much glass except in their new plant. So, putting the two together, I imagine they were building it during 1928.

[fol. 822] Q. And the phrase "new plant" in that answer means new laminated glass plant?

A. Laminated glass plant. I am speaking now, however, only from hearsay.

Q. Now, Mr. Higgins, my recollection of your testimony is: About the middle of the year 1928, because of the serious illness of this child known as Duplate, the Pittsburgh

Plate Glass Company reduced its commissions from 5 to 3 per cent.

A. If that was the time.

Q. Assuming that was the time. I guess maybe I'm wrong; it should be 1929.

A. '29.

Q. I assume that what you meant by the child being sick with the rickets was, that it was losing money during those days?

A. That is correct.

Q. Did you give any consideration at that time to the cause of that illness of this child?

A. Oh, we were very much concerned about it.

Q. And didn't you come to the conclusion that the cause was because of its losses, and because of its failure to make any profits?

A. Certainly.

Q. Did you give any consideration to the fact that the one possible way, or remedy for the cure of that illness, would have been to raise the selling price of this glass?

A. That was not the one possible cure, Mr. O'Shea. Our losses were operating losses, were due to difficulties we had at the plant, to unexpected advance in the production, and costs that were far higher than we had ever anticipated.

Q. But at that time you knew that because of that defective product, that the operating costs were considerably higher than your selling price?

A. Yes, on some orders.

[fol. 823] Q. Well, were there any orders at that time, 1929, that you were making money on, on the selling price that you were obtaining?

A. It was mighty hard to find, but I guess you might have found one or two of them.

Q. Isn't it a fact that the Saftee Glass Company, of Philadelphia, did sell considerable glass during the war for airplanes, ships, and so forth?

A. I believe they did, Mr. O'Shea.

Q. And those were rather larger sizes—at least, than goggles—were they not? They would necessarily be?

A. Yes.

Q. The glass that was used on airplanes was more or

less of a windshield, the same as the automobile windshield and cabin windows?

A. Yes.

Redirect examination.

By Mr. Smith:

Q. Mr. Higgins, Mr. O'Shea, in one or more of his questions, suggested as a cure for this sick child, the Duplate Corporation, that you might have raised the price of laminated glass. Why didn't you raise the price?

A. It would have shut off what business we had.

Q. You couldn't have sold the product?

A. Couldn't have sold the product.

Q. You have been also interrogated by Mr. O'Shea concerning the evidence of Mr. McHenry on page 920 of the record, and I want to read you that testimony. This is examination of Mr. McHenry: "Q. Now, can you state from your working papers whether or not all of the glass in the 1′ to 2′ 8″ bracket was sold for more than .15590 in the year 1928?" "A. The average selling price, the 1 to 2′ 8″, of this that I have taken as cutting loss was .2387." You will notice that the sizes Mr. McHenry is dealing with [fol. 824] are size not below 1 foot, sizes 1 foot to 2 feet 8 inches.

A. Yes.

Q. Is that the kind of glass sizes, in which you would have to sell the glass, for which you claim this special cutting loss?

A. These sizes which I have referred to are sizes that are not of the proper shape to fill the current demand. You may have, in the 1 foot to 2 feet 8 inches bracket, a size that will be ordered by the thousands, and you may have in that same bracket another size that cannot be sold at all because it is not the proper shape. When we accumulate sizes that are dead, that cannot be sold, the only thing we can do with them is to throw them away, which means making batch out of it, or cullet, and getting them down to some size that can be sold. So they are cut down and sold whenever a price can be obtained that is greater than the value of the cullet.

Q. I understand the testimony of Mr. McHenry to refer to that glass which actually was sold.

A. The glass that actually was sold.

Q. The necessity of having to cut to these automobile limited number of sizes, does that result in an unusual amount of glass that has to be thrown away in fragments, in cullet?

A. Has to be thrown away in fragments, and the accumulation of a great many dead sizes which have to be cut down and sold as strips.

Q. Now, so that we may have it right in this connection, without making the Master go through all these bulky records, what does your price list, which has been offered in evidence in this case, show the prices per square foot on the smaller sizes?

A. The 3-inch strip, 6 cents.

Q. That is 6 cents per square foot?

[fol. 825] A. Six cents per square foot. 4-inch strip, 7 cents; 5-inch strip, 8 cents. Do you wish me to continue?

Q. That is enough. It appears, as the size gets larger, the price increases?

A. Yes; the smaller the size, the lower the price. May I also say, Mr. Smith, that sometimes sales of these dead sizes are made at prices lower than that schedule. I recall, for instance, sales that were made to the manufacturers of casement windows, for residences, which run, largely, 7 x 10 and 8 x 11 inches; we have sold carloads of those sizes to manufacturers of casement windows at prices substantially below even those low prices that are given in the schedule.

Q. That is, at prices below these prices of 6, 7, 8 and 9 cents a square foot?

A. I could get the price on that, if it is important, but the prices I have just quoted from the list are the stock sheet prices; the prices for cut sizes are somewhat higher, but these special sales to which I have referred were probably made at about stock sheet price.

JAMES C. BRADLEY, a witness produced on behalf of defendants, having been duly sworn, testified as follows:

Direct examination.

By Mr. Smith:

Q. Mr. Bradley, where do you live?
A. Pittsburgh.
Q. And how long have you lived in Pittsburgh?
A. Since 1907.
Q. Are you a member of the bar?
A. I am a member of the bar of the Federal courts; I have never been admitted to the local courts.
Q. Are you a patent lawyer?
A. A patent lawyer; yes, sir.
[fol. 826] Q. How long have you been specializing in that field of law?
A. Since 1907.
Q. That is your entire work, is it, Mr. Bradley?
A. Not exactly. I got my original training in this line in the Patent Office in Washington, where I was Assistant Examiner for about four years in the U. S. Patent Office, prior to coming to Pittsburgh.
Q. I mean, you devote your entire time to the patent law?
A. Yes, I do.
Q. And are you employed by the Pittsburgh Plate Glass Company?
A. I am employed by the Pittsburgh Plate Glass Company, and have been so employed since 1918.
Q. And you have your office in the company's office?
A. Right with the office of the company.
Q. And you have been employed as patent counsel during that period of time?
A. I have.
Q. You are head of the patent department?
A. Yes.

Mr. Smith: I think it has been shown in this case, Mr. Shrum, that the Pittsburgh Safety Glass Company, of Corporation, was organized about December, 1927, if I recall correctly.

Q. Is it your recollection that that was about when that corporation was organized?

A. That is my recollection.

Q. That company was the company whose name was afterwards changed to Duplate Corporation, wasn't it?

A. That is so.

Q. At the time of the organization of the Pittsburgh Safety Glass Company, or shortly prior thereto—which [fol. 827] would be some time in 1927—will you state whether or not you rendered any opinion to the Pittsburgh Plate Glass Company, or the Pittsburgh Safety Glass Company with respect to the Benedictus patent that is involved in this litigation?

A. Yes, I did. I rendered opinions on several occasions, orally. I was in very close touch with the officials of the Safety Glass Company, so that I did not make any written reports, as I remember, and I have looked in my records to see whether I made any such reports at that time, and have not been able to find that I did.

Q. Did you investigate the entire patent situation, to the best of your ability, as affecting this laminated glass?

A. Yes, I did, in December, 1927.

Q. Did you investigate any patents in addition to the Benedictus patent?

A. Yes; I made a survey of the patents relating to safety glass, with the idea of finding out just what we could do, and I ran across a number of other Benedictus patents, and others besides, and I remember this patent very distinctly—I got the file of this patent to see what happened to it in the Patent Office.

Q. Do you remember whether the research department of the Pittsburgh Plate Glass Company did any research work in connection with the proposed manufacture of safety glass in 1927?

A. Yes, they had been doing work in this line for a long time—possibly before, even; the matter became especially active towards the last of the year, toward November and December, at which time I thought it was a good time to make a survey of the patent literature to see where we stood.

Q. Do you remember what adhesive the research department had concluded was the most promising?

[fol. 828] A. The most promising adhesive appeared to be the gelatine.

Q. And what, if any, investigation did you make with respect to the patents covering the use of gelatine as an adhesive?

A. I made a search to see whether there was any patent which broadly covered the use of gelatine. The only patent that seemed to be pertinent, was the Benedictus patent here in suit. I made a study of this patent with a view of seeing whether or not the method in which we proposed to use gelatine would involve an infringement. At that time the procedure of the research department was to apply a coating of gelatine to the glass, either by brushing or spraying, allow it to dry until it became a dull color, and then composit the glass in a press under a heating pressure, or in rubber bags. At that time the Pittsburgh Plate Glass Company's research men favored the press, but they did some work both ways, and had in mind compositing by rubber bags. The Benedictus patent, as I understood it, was directly toward the use of gelatine in rather a new way. Benedictus pointed out in the patent that gelatine used in the ordinary way, merely air dried, contained enough moisture to mar the glass, and he proposed to avoid this difficulty, which he did by drying the gelatine and then treating it with a dehydrating agent—that is, a chemical which would remove some more of the moisture—after which the glass was composited in the usual way. The first eleven claims of this patent were directed to the process, and in each claim specified the use of a dehydrating agent. The last claim, which was the claim in suit in this litigation——

Q. That is the twelfth?

A. The twelfth claim, involved the use of gelatine substantially free from moisture. Now, it seemed clear to me, therefore, that this patent covered the use of gelatine in an [fol. 829] original way, by the step of dehydration, and I reasoned that, if we used gelatine by merely air drying, we were not infringing the patent. And I reported this conclusion to Captain Brown, and to Mr. R. L. Clause, who was vice-president of the Pittsburgh Plate Glass Company, and who later became vice-president and general manager of the Pittsburgh Safety Glass Company. I told him I did not believe we would have any trouble with this patent. That

was so clear that it was allowed by the Patent Office, on the understanding that it covered this additional step of dehydration; which we did not propose to use. I was influenced in this view, that we would not have any trouble, by the knowledge that the Saftee Glass Company of Philadelphia had been using the identical process, which we proposed to use, for a great many years—as much as ten years anyway—without molestation from the owners of the Benedictus patent. From this, it appeared to me that either it was recognized that a process involving gelatine without dehydration did not infringe the Benedictus patent, or else that the owners of the Benedictus patent regarded it very lightly.

Q. And did you report to Captain Brown and Mr. Clause that in your opinion this process, proposed to be used by the Pittsburgh Safety Glass Company (if that is its right name) would not, in your opinion be a violation of the Benedictus patent?

A. I did; and I further said I did not think we would ever be troubled by the patent. I did not think a suit would ever be brought on that patent.

Mr. Smith: In this connection, Mr. Shrum, defendants offer in evidence, for the information of the Master, the report of the decision in Triplex Safety Glass Company of North America v. Kolb, doing business under the name of Saftee Glass Company, reported in 53 Fed. 2d, at page [fol. 830] 1062; the opinion being written by Judge Kirkpatrick in November, 1931, in which case the bill brought by the plaintiff, the Triplex Safety Glass Company of North America, was dismissed by reason of laches.

I do not formally offer it in evidence; I call the attention of the Master to it, and I do this in connection with the testimony of this witness, and also in connection with the testimony of the plaintiff's witness, Mr. Edwards, given on page 166 of the record, which is as follows: "Q. Do you know whether the Triplex Company has a suit pending against the Saftee Glass Company, of Philadelphia? A. Yes, sir, I do. We have a preliminary hearing on Wednesday of this week."

Q. Now, Mr. Bradley, about the time the Pittsburgh Safety Glass Company was organized, or shortly thereafter, were you asked by an official of the Pittsburgh Safety Glass

Company to arrange a meeting with the attorneys of the du Pont Company to discuss the patent situation?

Mr. O'Shea: When was that?

Mr. Smith: Some time early in 1928.

A. Yes, I was asked to arrange such a conference, and, acting in accordance with those instructions, I went to Wilmington——

Q. May I interrupt you, Mr. Bradley?

A. Yes.

Q. At whose instance did you arrange the meeting? Do you know the man's name?

A. At the instance of Capt. Brown, I believe. I went to Wilmington with H. K. Hitchcock, consulting engineer of the Pittsburgh Plate Glass Company, and a member of the Patent Committee, and had a conference with Mr. H. A. Kingsbury, who was patent attorney in the employ of the [fol. 831] du Pont Viscoloid Company. I took my patent data with me that I had collected in my previous survey, and found that Mr. Kingsbury had made an investigation himself. We discussed quite a number of patents, and I told him exactly what the line of research had been by the Pittsburgh Plate Glass Company, and what I understood the proposed method of operation would be. We particularly discussed the Benedictus patent in suit, and I found that Mr. Kingsbury had arrived at practically the same conclusions as I had; namely, to the effect that if we used gelatine in the ordinary way—merely air dry it—and did not use a dehydrating agent to take out moisture, so as to reduce the moisture content below the normal moisture content of gelatine, that there would be no infringement of this patent. Upon my return to Pittsburgh I reported to Capt. Brown and to Mr. Clause——

Q. Will you just let me stop you at that point?

A. Yes.

Q. Now, do you remember attending a meeting in New York City on July 18, 1928, following a notice given by the Triplex Corporation, or its attorneys, that the Pittsburgh Safety Glass Company was infringing the Benedictus patent?

A. Yes, I attended a meeting in New York on July 18, 1928.

Q. Who were there representing the Pittsburgh Safety Glass Company?

A. Representing the Pittsburgh Safety Glass Company were F. B. Davis, who was chairman of the board; C. K. Davis, J. A. Burckel, C. H. Biesterfield, who was in charge of the du Pont patent department, and H. A. Kingsbury, attorney for the du Pont Viscoloid Company.

Q. And yourself.

A. And myself.

[fol. 832] Q. Was the Triplex Company represented at that conference?

A. Yes; Nielson Edwards was there, A. L. Haskell, and their attorney, William B. Greeley.

Q. He was a patent attorney?

A. Mr. Greeley is a patent attorney.

Q. Now, was that meeting an informal meeting?

A. Yes, it was an informal meeting, and Mr. F. B. Davis acted as chairman of the meeting.

Q. Is Mr. Greeley a partner of the learned gentleman, Mr. O'Shea, whom we have here with us this morning?

A. Yes.

Q. Now, did anybody explain the position of the Pittsburgh Safety Glass Company with respect to this Benedictus patent?

A. Yes; Mr. Davis called upon Mr. Biesterfield to explain the position of the Pittsburgh Safety Glass Company with respect to this patent, and Mr. Biesterfield started by explaining just what the Pittsburgh Safety Glass Company was doing in its operation at Creighton. He then discussed the Benedictus patent in considerable detail, pointing out that Benedictus proposed to dry the gelatine on the glass sheets in the usual way, and then apply dehydrating agents, such as alcohol, to remove the excess moisture. Mr. Biesterfield explained that this dehydrating operation must necessarily reduce the moisture content below the normal moisture content of gelatine, otherwise, there would be no object in applying it; and, further, that this is indicated later in the patent in connection with the description of the sealing operation, since Benedictus pointed out that the purpose was to prevent any access of the air to the gelatine, and thus prevent any rehydration of the gelatine. Mr. Biesterfield said that this must mean that Benedictus intended to have his gelatine at a degree of dryness less than

[fol. 833] that of normal gelatine, otherwise, it would not be rehydrated by the air. He then took up the question of the claims, and pointed out that the first eleven claims were clearly each limited to the application of a dehydrating agent to the gelatine. He pointed out that in the operation of the Pittsburgh Safety Glass Company no such step was employed, but that, on the contrary, the gelatine was dried only for a very short period, one or two minutes, before the glass was composited.

Q. How do you mean "it was dried"? Was it dried by an agent, or just allowed to be in the air?

A. That it was dried merely by exposure to the air, and that there was no heating, no other means, to dry the gelatine after it was spread onto the glass. He then discussed Claim 12, and expressed the opinion that the term "substantially free from moisture," as applied to the gelatine, must mean the removal from the gelatine of moisture below the normal moisture contained in gelatine, and that the patent was limited to a dehydrating step which was not used by the Pittsburgh Safety Glass Company.

Q. In this statement that was there made at the meeting by Mr. Biesterfield, state whether or not, in his opinion, the process of the Pittsburgh Safety Glass Company violated this Benedictus patent?

A. He very emphatically expressed the opinion that there was no infringement of the Benedictus patent by the process which was being employed at that time by the Pittsburgh Safety Glass Company.

By Mr. Christy:

Q. Or by the product?

A. Or by the product.

By Mr. Smith:

Q. Did Mr. Greeley, the attorney for the Triplex Company, say anything?

[fol. 834] Mr. O'Shea: Objected to on the ground that it is incompetent, irrelevant and immaterial, and not constituting the best proof.

The Master: I think we will accept the answer, and note an exception to Mr. O'Shea.

A. Mr. Greeley responded very briefly to Mr. Biesterfield's argument; in fact, he practically contented himself

by saying that he could not agree with Mr. Biesterfield's conclusions, that he regarded the Benedictus patent as the pioneer, and that he thought that the product of the Pittsburgh Safety Glass Company constituted an infringement.

Q. On your return to Pittsburgh, after this meeting, will you state whether or not you reported what had been said at the meeting, to anybody, any officer of the Pittsburgh Plate Glass Company?

A. Yes, I made as complete a report as I could to Mr. R. L. Clause and to Mr. H. S. Wherrett, Mr. Wherrett being president of the Pittsburgh Safety Glass Company, and Mr. Clause vice-president and General manager.

Q. At that time did you again state whether or not you believed that this operation, the product of the Pittsburgh Safety Glass Corporation, was a violation or an infringement of the Benedictus patent?

A. Yes; I stated that this conference had reinforced my opinion to the effect that the process and product of the Pittsburgh Safety Glass Company did not constitute any infringement of the Benedictus patent; and I further stated that it seemed to me so clear, that I did not believe that we would ever be sued upon this patent, and I did not think there was any justification for bringing the suit.

Q. Will you state whether or not, at that meeting in New York which you have just described, Mr. Davis, representing the Pittsburgh Safety Glass Corporation, made any [fol. 835] offer to the representatives of the Triplex Corporation to permit the latter to check up the operations of the plant of the Pittsburgh Safety Glass Corporation?

A. He made such an offer, and it was later accepted. In August, Mr. Fahr, who I believe was manager of the Triplex Safety Glass Company, visited the plant of the Pittsburgh Safety Glass Company and saw the complete operation, and later I believe Mr. Edwards saw it—I am not sure whether Mr. Haskell was with him at that time or not.

Mr. O'Shea: The plaintiff objects to all the testimony on the ground that it is immaterial and irrelevant, and seems to constitute an attempt on the part of the defendants to overrule the decision of the District Court for the Western District of Pennsylvania, and the Circuit Court of Appeals for the Third Circuit, and therefore moves to strike the testimony out.

Mr. Smith: Counsel for the defendants respectfully object to the statement which has just been placed upon the record by the learned counsel for the plaintiff. In this case the defendants have the right to show that it was not a deliberate, wilful infringement of this patent, and the testimony of counsel, Mr. Bradley, has been offered for that purpose, and that purpose only, and not as an attack on the decision of the Court in which it was decided, for all time, that there was an infringement of this patent. And we think that no such statement or innuendo should be placed on the record by the learned counsel for the plaintiff.

Mr. O'Shea: Counsel for plaintiff also calls the Master's attention to the fact that in the decision of the case of Triplex v. Saftee, reported at 53 Fed. 2, at page 1062, [fol. 836] the holding of the Court was, that the Benedictus Patent No. 1,182,739 was infringed by the defendant in that case.

(No cross-examination.)

C. L. McHenry, recalled:

Cross-examination.

By Mr. O'Shea:

Q. Mr. McHenry, referring to Defendants' Masters' Exhibit "U," and particularly the sixth column from the right-hand end of the exhibit, am I correct in my understanding that that column means that the exact square footage that was taken out of polished plate stock was, in the instance of the first item, only 18 by 22½ inches?

A. That is correct.

Q. So that when that order was filled, the first operation was to take out of stock a piece of glass 18 by 22½ inches?

A. That is correct.

Q. Now, the next column is headed, "Bracket Size Polished Plate Billed to Duplate"; and on the first item it says, "18 x 24"?

A. Yes.

Q. That merely means that the Pittsburgh Plate Glass Company charged Duplate for a footage of 18 by 24, but that they had only delivered to Duplate, and Duplate had

only used for filling that order, a piece of glass 18 by 22½ inches; isn't that correct?

A. That is correct.

Q. Now, this Exhibit "U" in computing the percentage, which is shown at the bottom, of 7.22 per cent., uses the additions of the column headed "Bracket Size Polished Plate Billed to Duplate," does it not?

[fol. 837] A. It does; it used the total feetage purchased, which is the third column from the last.

Q. And that third column is computed by the multiplication of the fifth column?

A. Right.

Q. From the right-hand edge of the exhibit?

A. Yes, sir.

Q. When you use "purchased" there, you use it in the same sense as billed?

A. Purchased as Duplate, or purchased from the Pittsburgh Plate Glass Company.

Q. Well, that is the general principle followed throughout that whole exhibit?

A. It is; wherever you purchase over one-foot bracket size—whenever glass is furnished over the bracket size, it is customary to bill in the next higher bracket.

Q. Even though the higher bracket is not actually delivered in square footage of glass?

A. Yes, sir.

Q. Now, will you turn to Defendants' Masters' Exhibit "BB." In that exhibit you show a total, which is entitled "Expense Incurred by P. P. G. Co.," of $539,145.98. Am I correct in my understanding that in arriving at that figure you used the total sales of all glass from Pittsburgh Plate Glass Company?

A. This does not represent sales at all. It is expense incurred in making Duplate sales—sales of laminated glass.

Q. But this is an apportionment, isn't it, of all the expense of the Pittsburgh Plate Glass Company in making sales of Duplate?

A. No, it is not.

Q. Well, will you please state how you arrived at that figure of $539,145.98?

A. In that figure is included the salaries and expenses of employees working out of the Pittsburgh Plate Glass [fol. 838] Company general office, on Duplate sales alone, plus the proportion of the warehouse expense, based on the

ratio of warehouse sales of plate glass to that of Duplate. In other words, at our warehouses the expense of selling glass is all accumulated under one heading. In this expense is the cost of selling Duplate, as well as plate glass, so this expense of the warehouses has been apportioned to Duplate on the basis of Duplate sales and plate glass sales.

Q. Well, what figure did you attribute to that apportionment?

A. The proportion of the expense.

Q. I want the total figure of that.

A. $539,145.98 is the total expense, including that direct expense from general office.

Q. Well, but included in that is the general office; now, how much was included in there of the general office?

A. My work sheet is only in summary form; I do not have that figure here.

Q. Well, have you got it any place?

A. Yes, I can get it.

Q. Will you try to have that with you this afternoon?

A. Yes, sir.

Q. Now, have you got your work sheets here showing the actual figures used in making the apportionment, that is allotted against this account, for the warehouse expense?

A. I have.

Q. Well, now, will you just give me those figures.

A. For 1928?

Q. Yes, let's have 1928.

A. The warehouse proportion is $99,156.60.

Mr. Christy: The basic thing—not what the proportion is, but what the start of it is.

[fol. 839] Mr. O'Shea: We will get the proportion in the end.

Mr. Christy: Yes, but you want the start of it now.

A. Do you want this by years?

Q. Let me have 1928 first.

A. For 1928, total sales of plate glass and Duplate was $24,006,602.81. Of that, plate glass was $23,117,615.51; Duplate, $188,987.30. The portion of Duplate to total sales is .037. The total expense of selling glass for the year 1928 was $2,679,908.13. .037 of the above, gives the proportion of warehouse expense applicable to Duplate, of $99,156.60, to which was added the general office expense direct on selling Duplate, of $14,017.46, making a total expense appli-

cable to Duplate in the year 1928, of $113,174.06.

Q. Will you now give the same figures for 1929?

A. The total sales of plate glass, including Duplate, in the year 1929, amounted to $24,776,580.13, of which polished plate sales were $22,222,229.72; Duplate sales were $2,554,350.41; the proportion of Duplate to total sales being .1031. The warehouse expense in 1929 was $2,729,277.92. .1031 of the above gives warehouse expense, applicable to sale of Duplate, of $281,388.55. To this is added the general office expense incurred direct on selling Duplate, of $21,772.17, making a total expense incurred in selling Duplate in the year 1929, of $303,160.72. For the first five months of 1930 the total sales of polished plate and Duplate were $7,755,747.52. Of this, polished plate glass sales were $6,826,463.16; Duplate sales were $929,284.36; or Duplate sales were .1198 of the total. The warehouse expenses in selling glass, for the first five months of 1930, were $968,116.18. .1198 of the above gives Duplate selling expense, at warehouses, of $115,980.32, to which is added [fol. 840] the general office expenses direct, in selling Duplate, of $6,830.88, making a total of $122,811.20.

(Recess taken until 2 P. M.)

Afternoon Session

C. L. McHenry resumes the stand.

Cross-examination (continued).

By Mr. O'Shea:

Q. Mr. McHenry, are not the selling prices used in the accounting as filed by you, particularly the latest one marked in evidence as Defendants' Master's Exhibit "Z", the selling prices from Pittsburgh Plate Glass Company to its warehouses?

A. No; that is sales of Duplate Corporation to Pittsburgh Plate Glass Company.

Q. I mean, sales of Duplate Corporation to Pittsburgh Plate Glass Company, including sales to the Pittsburgh Plate Glass Company's warehouses?

A. Yes.

Q. Now, the warehouses sell at higher prices than they purchase at?

A. In some instances. Most of the orders from the warehouses are from the automobile manufacturers, and the only difference in sales price between the Pittsburgh Plate Glass Company and the warehouse, and the Duplate Corporation, is 3 per cent. commission, or 5 per cent.—whichever period it happened to be in.

Q. That is where the warehouse delivers the goods to the automobile manufacturer and body builder?

A. Yes, sir.

Q. But on all other sales the warehouse charges an additional selling price?

[fol. 841] A. They do on replacements orders.

Q. The Pittsburgh Plate Glass Company's warehouses operate in the same way that an ordinary jobber does; do they not?

A. That is so.

Q. And aren't they self-supporting?

A. In ordinary times they are; just now they're in the red.

Q. Did you open the Duplate books at the beginning of the operations of Duplate Corporation?

A. I did not; Mr. Spahr, himself, did this.

Q. Well, when did you first assume supervision over the Duplate books?

A. I haven't had direct supervision, in the capacity of a supervisor, at any time; I am the auditor for the Pittsburgh Plate Glass Company.

Q. Who acted as the supervisor at all times—Mr. Spahr?

A. Mr. Spahr is the head of all accounting connected with our company, and I work through Mr. Spahr.

* * * * * * *

Q. Mr. McHenry, in the letter included in Defendants' Master's Exhibit "Y", which is signed by you and is part of the testimony, you refer in the second paragraph there to the fact that "We are advised", and at one or two other places you use the same expression. Will you please state who advised you as to matters therein referred to.

A. From the testimony given, and the way the accounts were set up, we took it that these items would be as mentioned in this report.

Q. Then no particular person advised you, it is your own conclusion, from the testimony; is that what we are to understand?

[fol. 842] A. Mr. Christy and I talked these matters over, and if any advice was given, it was Mr. Christy.

Q. On the second page of that letter, Mr. McHenry, in the second paragraph from the bottom, you state, "These statements were taken from Mr. Sharpe's work sheets, and we agree with those figures, and accept them, down to and including the line entitled, 'Costs and Expenses per L. R. B. & M. as Adjusted'." That phrase, "Costs and Expenses per L. R. B. & M. as Adjusted", means, does it not, costs and expenses per L. R. B. & M. as adjusted before elimination of all the Lybrand's account called "Contested Items"?

A. It does.

Q. And that same thing is true where you use that same phrase or quotation in the 1928, or Schedule No. 1, which appears on the fifth line from the bottom of that account.

A. The fifth line from the bottom is the one that we used.

Q. I mean, there you use the expression "Costs and Expenses per L. R. B. & M. as Adjusted", and shouldn't that read, "As Adjusted before Elimination of Contested Items"?

A. That would be correct. But, at the top of the page, it reads, "Reconcilement of Sales, Costs & Expenses—Per Books to Court Accounting to L. R. B. & M. before Elimination of Contested Items."

Q. So that the same thing is meant by this fifth line from the bottom?

A. It is.

Q. Now, I don't know that it makes much difference, but on each of these pages, constituting Schedule No. 1 in this Exhibit "Y", the third line from the bottom is entitled, "Profit or Loss per Court Accounting." Just what do you mean by that phrase "Court Accounting"?

[fol. 843] A. That refers to the original accounting filed by the Duplate Corporation.

Q. That is, defendants' original statement of account as we refer to it in this accounting?

A. Yes.

Q. For purposes of clarification: In this schedule No. 1 you have broken up the total figure into months?

A. That is true.

Q. Whereas, in the defendants' original statement of account it is just set in in a yearly amount?

A. That is right.

Q. Now, this Defendants' Exhibit "Y" is built up practically on the same theory as Plaintiff's Exhibits 9 and 9-A up to that point, where 9 and 9-A eliminates certain items of expense which are called in those exhibits as "Contested Items"; is that so?

A. It is, with the exception of returns.

Q. Well, that is one of the contested items in 9 and 9-A, isn't it?

A. Yes.

Q. So that the line, on each of Schedule No. 1, which is designated as "Costs and Expenses per L. R. B. & M. as Adjusted," is the same as appears in Plaintiff's Exhibits 9 and 9-A?

A. Well, I would not say that they were; I have not checked those last five items through. We accept and agree to this statement down to and including the line stated as "Cost and Expenses per Lybrand, Ross Bros. & Montgomery, as Adjusted."

Q. You are both in accord down to that line, as you say, "Cost and Expenses per L. R. B. & M. as Adjusted"?

A. Yes, sir.

Q. What I mean in the other question, you have not checked the following four lines?

A. No, I have not.

[fol. 844] Redirect examination.

By Mr. Smith:

Q. Mr. McHenry, have you got an Exhibit "U"?

A. I have.

Q. In his cross-examination this morning Mr. O'Shea called your attention to the sixth and fifth columns from the end of that exhibit. Have you it before you?

A. No, I haven't but I can answer all right without.

Q. (Mr. Smith hands witness copy of Exhibit "U".) And brought out the point, as I gathered it, that in some cases the Duplate Corporation was charged for sizes of one-eighth inch plate glass at the price of a given bracket, where the actual measurements of the glass would not be the full limits of the bracket. Was that what was brought out?

A. That is true.

Q. Will you please tell the Master whether the Duplate Corporation was treated like any other manufacturing company?

A. They were treated the same. When a glass is ordered, as in this instance, 18 x 22½, you are charged for 18 x 24, because that is the next bracket over the 22½.

Q. Is that the custom in the plate glass industry?

A. That is the custom with all plate glass industries.

Q. With all of your competitors, as well as your company?

A. To my knowledge, it is.

Q. Mr. McHenry, you were asked a question with respect to Exhibit "Z", whether that exhibit showed prices charged by the Duplate Corporation. And you gave your answer. Does that exhibit show the prices that were actually paid by the various automobile manufacturers?

[fol. 845] A. In this exhibit where it is marked—like sales to Moon Motor Car Company, or Bender Body Company, the sale is billed to the Pittsburgh Plate Glass Company at the amounts shown in this exhibit, and the amount billed to the Moon Motor Car Company, or any other company, would be the same as shown in this exhibit, plus 3 or 5 per cent, whichever the case might be.

Q. And does that same explanation apply, with respect to the sales shown in this exhibit, with regard to all of the customers whose names are given in the first column?

A. It does.

By Mr. Christy:

Q. Now, as to all these billing prices shown on your Exhibit "Z," are they identical with the billing prices shown on Mr. Sharpe's corresponding Plaintiff's Exhibit No. 9?

A. They are, because they were copied from his own reports.

By Mr. Smith:

Q. Mr. McHenry, we have asked you to prepare certain short exhibits, each on one page only, for clarity and to assist the Master and the Court in this case. Have you prepared these exhibits?

A. I have.

Q. I show you Defendants' Exhibit "DD," and ask you what that is?

A. This is a statement of Duplate sales, and sales of plate glass from the Pittsburgh Plate Glass Company to Duplate Corporation, at Creighton. The first line shows the Duplate sales, giving feet, price and amount, for the years 1928, 1929, and the first five months of 1930; the second line shows the sale of one-eighth-inch glass from P. P. G. Co. to Duplate.

[fol. 846] Q. That is, from the Pittsburgh Plate Glass Company?

A. Yes.

Q. In the same way?

A. In the same way.

Q. And what have you to say about the explanatory note at the foot of that exhibit. Just let us read this. I think it is self-explanatory, is it not?

A. It is.

Mr. Smith: We offer in evidence Defendants' Exhibit. "DD."

Q. I now show you Defendants' Exhibit "EE," and ask you what that is?

A. This is a statement showing what one-quarter-inch——

Q. Just read the heading of it.

A. "Statement Showing Profit on Sale of One-eighth-inch Glass from Pittsburgh Plate Glass Company to Duplate Corporation, Allowing Credit for Sale of One-Quarter-Inch Plate Glass to Customers, Had Duplate Not Been Sold."

Q. Now, so that the Master may understand that exhibit, the headings above the respective columns show the years?

A. They do—the years 1928, 1929 and first five months of 1930.

Q. Now, the first item under 1928 is 962,448 square feet. Am I right in understanding that that means the number of square feet in the form of Duplate that was sold in that year, less returns?

A. It does.

Q. And the next item below that, opposite the words "Less Net Sales to Fisher and Fleetwood," is 558,137. That is feet, I believe?

A. That is square feet of Duplate sold to Fisher and Fleetwood during the year 1928.

[fol. 847] Q. Yes; and the table then shows the deduction of the last mentioned item from the first mentioned item, leaving a difference of 404,311 square feet?

A. That is correct.

Q. And that is square feet of Duplate?

A. That is.

Q. Now, the next item below that in this same column shows the sales of one-eighth-inch plate glass from the Pittsburgh Plate Glass Company to Duplate, amounting to 3,600,212 square feet?

A. That is correct.

Q. And the column shows that from the last mentioned figure, you deduct an area of square feet of plate glass equal to the 404,311 square feet of Duplate which you have just explained?

A. Yes.

Q. And making that deduction, leaves the feet of one-eighth-inch plate glass, sold from the Pittsburgh Plate Glass Company to the Duplate Corporation, on which to compute the profit, as being 3,195,901 square feet?

A. That is correct.

Q. The next figure below that is the sales price average at which the one-eighth-inch plate glass was sold to the Duplate Corporation by the Pittsburgh Plate Glass Company, in the year 1928?

A. That is correct.

Q. The next figure below that, being .34432, is the cost of that plate glass, as the Pittsburgh Plate Glass Company claims it to be in its statements of account and testimony heretofore given?

A. That is true.

Q. And, subtracting the last mentioned cost from the sales price average of .41628 leaves, in 1928, a profit per foot of .07196, as shown in this exhibit?

A. That is correct.

[fol. 848] Q. And the last figure in that column, being $229,977.04, is the 3,195,901 square feet multiplied by the profit of .07196 per square foot?

A. That is correct.

Q. Making a profit, in that year, $229,977.04?

A. Yes, sir.

Q. Now, does the same explanation—being altered, however, by altering figures—apply to the 1929 column; also the column headed "1st 5 mos. 1930"?

A. It does.

Q. And, I believe, this exhibit shows opposite the words

"Profit or Loss per Foot," that in the first five months of 1930 there was a loss per foot of .00687?

A. That is correct.

Q. And the same column to which I am referring shows the total loss for the first five months of 1930 as being $6105.82?

A. That is correct.

Q. And the total net profit, combining the three columns as shown by this exhibit, I understand to be $565,046.01?

A. That is correct.

Mr. Smith: Defendants offer in evidence Exhibit "EE."

Mr. O'Shea: Objected to as incompetent, irrelevant and immaterial.

The Master: It will be received subject to Mr. O'Shea's objection.

Q. Now, Mr. McHenry, there are several tables of figures on this Exhibit "FF"?

A. Yes, there are.

Q. What is the first table of figures?

A. The first is a statement showing profit on sale of one-eighth-inch glass from the Pittsburgh Plate Glass Company, at Creighton, to Duplate Corporation.

[fol. 849] Q. And it gives the figures for the years 1928, 1929, and the first five months of 1930 separately in each of the three cases?

A. Yes, it does.

Q. It gives the number of feet of one-eighth-inch glass sold by Pittsburgh Plate Glass Company to the Duplate Corporation in each of those years, does it?

A. Yes.

Q. It gives the sales price average for each of the years?

A. It does.

Q. For example, in the year 1928 the sales price average was .41628, meaning 41 cents and a fraction a foot?

A. Yes, sir.

Q. It gives next the cost as filed, being the same cost which is shown on Defendants' Exhibit "EE," except that in "FF" there has not been any reduction in feetage for the plate glass which would have been sold if no Duplate had been sold?

A. That is true.

Q. It shows the difference between the sales price aver-

age and the cost as filed, as thus described, and the profit and loss per foot? For example, in the year 1928 the profit per foot is .07196, meaning 7 cents and a fraction?

A. That is correct.

Q. And it gives at the foot of each of these three years, or fraction of a year in the last case, the total profit or loss, as the case may be?

A. Yes, it does.

Q. Showing, for example, in 1928 a profit of $259,071.25, and for the year 1930 a loss of $10,189.73?

A. That is correct.

Q. And it shows the profit or loss for the entire accounting period as being $712,998.65?

A. That is correct.

[fol. 850] Q. Now, the next table of figures, below the one we have discussed on this Defendants' Exhibit "FF," is what?

A. This was made up for illustration only, showing the profit computed, excluding items which Triplex Company claims should be excluded. It shows for the years 1928, 1929, and first five months of 1930.

Q. Now, take the year 1928, this column shows the items of cost which the Triplex Company claims should be excluded, as follows: Allowance for use of patented process, .12474, being 12 cents and a fraction?

A. That is correct.

Q. It shows the Federal income tax of .02267?

A. That is correct.

Q. Each of these last mentioned figures have been amounts per foot?

A. That is correct.

Q. It shows below that, this special cutting loss of .01548?

A. That is correct.

Q. And then it shows the total of the items of cost, which the Triplex Company claims should be excluded, as being .16289, meaning 16 cents and a fraction per foot?

A. That is correct.

Q. The next figure is the cost of the one-eighth-inch plate glass, as the Pittsburgh Plate Glass Company claims it to have been, being .34432; that is, 34 and a fraction cents per square foot?

A. That is correct.

Q. The next is a subtraction from the total items of cost, which the Triplex Company claims should be excluded, being .16289, from the cost as the Pittsburgh Plate Glass Company claims it to have been, being .34432, or .18143, being a cost, according to Triplex claim, of 18 and a fraction cents a foot?

A. That is correct.

[fol. 851] Q. Below that it shows the sales price from the Pittsburgh Plate Glass Company to the Duplate Corporation, being .41628, or 41 and a fraction cents per square foot?

A. That is correct.

Q. And from the last mentioned square foot figure is deducted the one which I have mentioned immediately preceding, leaving a difference of .23485, being 23 cents and a fraction per square foot, which is the profit per foot as the Triplex Company claims it to have been?

A. That is correct.

Q. And then the last figure applies the profit per foot, as the Triplex claims it to have been, to the total feetage sold, making a profit for 1928 of $845,509.79—as the Triplex Company claims it to have been?

A. That is correct.

Q. Now, does the same explanation apply to the columns entitled, respectively, 1929, and first five months 1930, as modified by the different figures in those columns?

A. It does.

Q. Now, immediately below, and as part of that tabulation, you have inserted a table of figures representing what?

A. Above profit reduced by deducting feet of plate glass which Pittsburgh Plate Glass Company would have sold if no Duplate had been sold (see Exhibit "EE").

Q. In other words, applying Exhibit "EE," which you have already explained, to this column of profit as made by the Triplex Company, it gives the result?

A. It does.

Q. For example, in the year 1928 it shows that there would have been 404,311 square feet of one-quarter-inch plate glass sold, if the Pittsburgh Plate Glass Company

[fol. 852] had not sold any laminated glass at all; is that right?

A. I would say, if the Duplate Corporation had not sold any laminated glass.

Q. Well, if there had been none sold by the Duplate Corporation or the Pittsburgh Plate Glass Company, as its agents?

A. Yes, sir.

Q. And it applies to that figure the profit per foot claimed by the Triplex Company, given above, being twenty-three and a fraction cents a foot; and shows a profit in dollars of $94,952.44?

A. It does, for the year 1928.

Q. Does that mean that you have deducted from the profit, for 1928, of $845,509.79, as claimed by the Triplex Company, the profit, at the same rate per foot, on the 404,311 square feet of plate glass which, the testimony of the defendants indicate, would have been sold if no laminated glass had been sold?

A. Yes, sir.

Q. Does the same explanation—altered only as the figures alter it—apply to the column headed "1929," and the column headed "1st 5 Mos. 1930"?

A. It does.

Q. And the total thus deducted from the claim of the Triplex Company is how much?

A. $484,381.

Q. Leaving the total profit, as claimed by the Triplex Company, and as reduced by these figures you have just explained, as how much in dollars?

A. $1,732,397.

Q. Now, the next table on that exhibit is what?

A. A statement of Duplate Corporation loss.

Q. Covering these same three separate periods of time?

A. Covering these same three separate periods of time.

[fol. 853] Q. Now, take the 1928 as an illustration; it shows for that year the account of loss, as originally filed by the Duplate Corporation, as being $560,548.03?

A. Yes, sir.

Q. The next item is a deduction, entitled "Less Items not Considered Operating Cost," of $7140.48. What is that?

A. These items of experimental expenses—donations, patent expense, and cost of Triplex suit, that we say now should not be considered operating cost.

Q. That is to say, that figure $7140.48 includes items, heretofore given as experimental expense, which the Pittsburgh Plate Glass Company now concedes should be deducted as an expense item?

A. Yes.

Mr. Smith: And the next item below that, I think, is self-explanatory, Mr. Shrum?

Q. It is this interest on investment for 1928, $35,000, showing a total of $42,140.48, which the Duplate Corporation now concedes should be deducted from the original statement of loss filed in this proceeding for that year?

A. That is correct.

Q. Leaving the net loss for that year $518,407.55?

A. That is correct.

Q. Now, the same explanation applies to the column entitled "1929," and to the column entitled "1st 5 Mos. 1930" —as the figures are altered by the figures appearing in those respective columns?

A. It does.

Q. And the result is to show the Duplate Corporation loss for the accounting period as being—omitting for the present returns and allowances—$911,617.44?

A. That is correct.

Q. Now, what is the next item of loss appearing in the column, that is the final column, of $83,561.42?

[fol. 854] A. That is returns received since June 1, 1930, when our original accounting was filed—or filed before that date.

Q. You mean, returns of defective Duplate?

A. Yes, sir.

Q. And the next figure below, in the final column, of $72,-060.42, what is that?

A. That is allowances that have been credited since June 1, 1930, applying to the infringed product manufactured prior to that date.

Q. Allowances to whom?

A. To warehouses and others.

Q. And the reason this figure is included, as the $83,561.42 figure is included, is because these items came in after the date to which your prior accounting was filed?

A. Yes, sir.

Q. And the result is, to wit, the Duplate Corporation loss, a total of $1,067,239.28, as shown by this exhibit?

A. Yes, sir.

Mr. Smith: Defendants offer in evidence Defendants' Exhibit "FF," and in connection with this offer we respectfully call the attention of the Master to the fact that we do not mean by this offer to give any credence or weight whatever to the claim of Triplex of a profit of $2,216,778; we are doing this so that the Master and the Court can understand this situation; and also so that we may show, even on that basis, the deduction for the plate glass which we claim we would have sold if no Duplate had been sold.

The Master: That is understood.

Q. Now, I hand you Defendants' Exhibit "GG" and ask you what that is?

[fol. 855] A. This is a statement showing gross sales and cost of sales of Duplate for period, years 1928, 1929 and first five months of 1930.

Q. When you say "cost of Duplate," I understand that includes all operating and other expenses?

A. It does.

Q. Now, let us take the year 1928, so that we understand this: The first subdivision, consisting of three columns, gives for that year of 1928—first, the sales of Duplate in square feet?

A. Yes, sir.

Q. It gives the price per square foot, realized for that Duplate, being 1.9951; that is to say, one dollar ninety-nine cents and a fraction?

A. Yes, sir.

Q. And then the next column gives the total price received for the whole number of square feet, at this price per square foot?

A. Yes, sir.

Q. That is an average price?

A. Yes, sir.

Q. Now, the second line gives the cost of production of this same Duplate?

A. It does.

Q. And the cost per square foot of that Duplate in the year 1928 was 2.4740, being two dollars forty-seven and a fraction cents per square foot?

A. Yes, sir.

Q. And the total cost, as shown by the exhibit, is $2,678,-202.87.

A. That is correct.

Q. And the next line below, entitled "Profit or Loss," gives the same number of feet—the loss per square foot and the total loss?

A. Yes, sir.

Q. And the loss per square foot of Duplate in that year was .4789, being forty-seven and a fraction cents, as shown by this exhibit?

[fol. 856] A. Yes, sir.

Q. Does the same explanation, except as altered by change of figures, apply to the subdivision for 1929, and the subdivision for the first five months of 1930?

A. It does.

Q. The exhibit shows that the loss per square foot of Duplate in the year 1929 was .1746, being seventeen and a fraction cents per square foot?

A. That is correct.

Q. And it shows that the average cost per square foot of Duplate in the year 1929 was 2.2049, being two dollars twenty and a fraction cents?

A. That is correct.

Q. It shows, for the first five months of 1930, that the cost per square foot of Duplate was 1.6611, being one dollar sixty-six and a fraction cents per square foot?

A. That is correct.

Q. And it shows a profit in that year of .0127 per square foot; that is to say, one and a fraction cents per square foot?

A. That is correct.

Q. When you come to your totals, we find that during the accounting period the total sales of Duplate in square feet were 4,141,206 square foot?

A. That is correct.

Q. And the total selling price of this number of square feet was $8,101,614.63?

A. That is correct.

Q. Whereas, the same square feet cost the Duplate Corporation to produce, $9,013,232.07?

A. That is correct.

Q. And subtracting from the amount last mentioned, the amount mentioned immediately preceding, leaves the loss to the Duplate Corporation in the sum of $911,617.44?

[fol. 857] A. That is correct.

Q. And below that you have added two items of returns and allowances, which you have already explained?

A. Yes, sir.

Q. Making the total loss of the Duplate Corporation, during the accounting period, how much?

A. $1,067,239.28.

Mr. Smith: Defendants offer in evidence Defendants' Exhibit "GG."

Mr. O'Shea: Objected to, as irrelevant and immaterial.

The Master: It will be received subject to Mr. O'Shea's objection.

Q. We hand you Defendants' Exhibit "HH," and ask you what that is?

A. This is a statement of profit on certain of Duplate sales, if average cost is applied to individual sales.

Q. This is a summary, is it not?

A. It is.

Q. And it shows in the same divisions, with respect to years, you have already mentioned?

A. It does.

Q. For example, in the year 1928 there is a profit, on certain of the Duplate sales, of $3406.46?

A. That is correct.

Q. The next item below that, which is entitled "Plus Profit Due to Allowance of Additional Expenses as Non-Operating," $33.11?

A. That is correct.

Q. That is, certain items heretofore charged to operating expense which we now concede should not be so charged?

A. That is true.

[fol. 858] Q. And it makes a total for that year, of the profit on certain of Duplate sales, of $3439.57; is that right?

A. That is correct.

Q. The same explanation applies to the year 1929, and the first five months of 1930—altered by the altered figures?

A. That is correct.

Q. And the result is to show—excluding for the moment allowances—a profit, on certain of the Duplate sales for the accounting period, of $184,666.84?

A. That is correct.

Q. Now, below that is an item entitled "Less Proportion of Allowances since 6/1/30" (meaning June 1, 1930), in the sum of $18,231.29. What is that?

A. This is the proportion of the allowances received since June 1, 1930, that we allocated to profit making sales.

Q. And it leaves the net profit, on certain of Duplate sales for the accounting period, of what sum?

A. Of $166,435.55.

Q. Does this exhibit conflict with the table on Defendants' Exhibit "FF," on which it shows that during the accounting period the Duplate Corporation lost $1,067,-239.28?

A. It certainly does, because, figuring it from our books, it will show $1,067,239.28 loss. When we compute the profit on the individual sales, using the average monthly cost, we get this result.

Q. Well, it conflicts in that sense?

A. Yes.

Q. But is there anything in these figures on Defendants' Exhibit "HH," which indicates that the figures on Exhibit "FF," to which I have called your attention, are incorrect? I am not asking you now to pass on the law of the case; I am just talking about figures.

A. No.

[fol. 859] Q. That is to say, while taking the business as a whole, during the accounting period, there was a loss to the Duplate Corporation of $1,067,239.28, as shown on Defendants' Exhibit "FF," if you pick out certain sales which are profitable, when considered by themselves, and applying the average cost of them, you get this result of $166,-435.55, as shown on Defendants' Exhibit "HH"?

A. That is correct.

Mr. Smith: We offer in evidence Defendants' Exhibit "HH."

Q. I show you Defendants' Exhibit "II," and ask you what that is?

A. This is a statement of items excluded from cost by accounting as claimed by Triplex Company (Plaintiff's Exhibits 9 and 9-A).

Q. Now, by this exhibit do you mean to concede that these items excluded were properly excluded by the Triplex Company?

A. Not at all.

Q. Was this statement prepared in order that the Master and the Court could see on one sheet the items which the Triplex Company claims should be excluded from costs?

A. That is the purpose of this sheet.

Q. And are the years and the various subdivisions, with their headings, self-explanatory?

A. They are, and were taken from the Exhibits 9 and 9-A of the plaintiff.

Mr. Smith: We offer in evidence Defendants' Exhibit "II,"—not for the purpose of showing that these items of cost were properly excluded, but only that the Master may see what items were excluded, without too much trouble.

[fol. 860] Recross-examination.

Mr. O'Shea: I should like to reserve my cross-examination on these Exhibits "DD" through "II" until I have an opportunity to give them a little closer scrutiny. So far as I see at this moment the Exhibits "DD" to "HH" appear to be very well explained on the record by Mr. McHenry, but I am not entirely sure I fully understand Exhibit "II," so if I may be granted the permission to reserve that, I will have no cross-examination at this time on those exhibits.

The Master: You may.

Mr. O'Shea: But, for the purpose of clarity, I should like to ask Mr. McHenry one question in reference to Exhibit "Z."

Q. Mr. McHenry, referring to Defendants' Master's Exhibit "Z," and particularly to sheet No. 1, for the month of January, 1929, am I correct in my understanding that the sales listed on that sheet, as having been made to Pittsburgh Plate Glass Company warehouses, was sold by the

warehouses at a higher price than the price given on that sheet?

A. May I ask for Exhibit 9-A covering the month of January, 1929, of Sharpe's? (Handed Exhibit 9-A.) These last four items that you have referred to were billed from the Duplate Corporation to the Pittsburgh Plate Glass Company at certain figures and amounts; these same amounts were billed to the warehouses, with the exception of one item, I notice, $554.37, where it was billed to the warehouse at $554.39. We don't know at the Pittsburgh office what this was billed to the customer, when sold, on these items.

Q. But isn't it the custom, in the Pittsburgh Plate Glass organization, for the warehouse to charge an additional amount than the amount which they pay ("they" meaning the warehouse), to the Pittsburgh Plate Glass Company?

[fol. 861]

A. It is, with the exception of where the order comes from a body builder or automobile manufacturer.

Q. But in all other cases they do charge an additional amount, or in a great many other cases, in most other cases?

A. I would say they do.

Mr. Smith: If the Master please, the plaintiff has offered in this case an exhibit which I understand was marked Plaintiff's Exhibit 27, being a schedule of Duplate infringing sales, the first sheet of which is entitled "Summary of Damages on Infringing Sales," and the last line of which reads as follows: "Total Jan. 1928—May 1930, $3,538,731.42, $320,647.76, $3,188,083.66," the summary sheet to which I have referred being dated 6/5/31 (which I understand means June 5, 1931), and included in which exhibit are a large number of sheets which I understand are supposed to make up the information shown on the first summary sheet.

(Counsel for defendants now asks Mr. O'Shea to state on the record whether he wishes to withdraw this exhibit, or whether he intends to stand on that exhibit in this case.)

Mr. O'Shea: I do not wish to withdraw the exhibit.

[fol. 862] H. S. WHERRETT, a witness produced on behalf of the defendants, having been previously sworn, testified as follows:

Direct examination.

By Mr. Smith:

Q. Mr. Wherrett, do you recall the fact that the Duplate Corporation sold to the Fisher Body Corporation a quantity of Duplate early in 1928 at the price of $1.75 a square foot.

A. I do.

Q. Did your company make that price for the purpose of undercutting the Triplex Corporation, or interfering with its business in any way?

A. Not at all.

Q. Why did you make that price?

A. Because our policy at that time was very definitely and distinctly to interest one or more automobile manufacturers in the use of laminated glass, preferably for standard equipment, if possible; if not, for possible use in their cars; believing that that was the best way to develop the use of this product in which we were vitally interested.

Q. Did you encounter any sales resistance in endeavoring to get the automobile manufacturers to buy this product?

A. We did—a great deal of resistance.

Q. Will you state whether or not there was any public demand for this laminated glass at that time?

A. Extremely little; some very slight demand from individuals who knew about it—perhaps bought it for a car—but in a general way there was no demand that we could find.

Q. Did the price at which your were endeavoring to sell the product make any difference in your ability to make sales?

A. It made all the difference, I think; it was the vital point.

[fol. 863] Q. When Mr. Higgins was on the stand yesterday I read into the record some testimony given by Mr. Edwards, of the plaintiff corporation, referred to on pages 166 and 167 of the stenographer's transcript. I do not wish to read that testimony again into the record, but, with the Master's consent, I will call your attention to the points of

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that testimony as to which I wish to interrogate you. This testimony referred to a conversation which Mr. Edwards said he had had with yourself and Mr. Higgins on or about October 5, 1928. Mr. Edwards testified, in substance, that they (that is, meaning yourself and Mr. Higgins) took the position, and told Mr. Edwards and his associates, that you were going to sell laminated glass to one automobile manufacturer in each price class, irrespective of what they got for the product, (that is, irrespective of what you got for the product), on the theory that if you got one manufacturer in each price class to adopt laminated glass, the other people would have to follow; and that you did not know what it cost you to make laminated glass, and did not know how to set a price. Did either you or Mr. Higgins make such a statement in this conversation?

A. Didn't know how to set a price?

Q. Didn't know what it cost you to make it, and didn't know how to set a price.

A. I do not recall any conversation to that effect. I remember the visit Mr. Edwards made—I do not remember the date—I remember a discussion about the whole situation of the laminated glass business—policies, prospects, and so forth—but there was no statement to that effect that was made by me, or in my presence.

Q. Did either you or Mr. Higgins say you were going to sell laminated glass to one automobile manufacturer in each price class, irrespective of what you got for it?

[fol. 864] A. Decidedly not.

Q. As a matter of fact, did you endeavor to sell to one manufacturer in each price class, irrespective of the price?

A. No, we did not; obviously, if we had, I think we would have secured some contracts that we never had.

Q. The witness, Mr. Haskell (a witness for the plaintiff corporation) testified on this subject—and I read his testimony into the record yesterday when Mr. Higgins was on the stand, and I don't want to read that long quotation again—I refer to pages 192 and 193 of the transcript. With the Master's permission I will ask you concerning certain parts of the conversation. This testimony of Mr. Haskell referred to this same meeting, in October, 1928, between Mr. Haskell and Mr. Edwards for the Triplex Corporation, and yourself and Mr. Higgins for the Duplate Corporation. Mr. Haskell testified that during that conversation, among other things, Mr. Higgins made the statement, that it was

to be your policy to get one car in each price class—something in the lower price class like Chevrolet, and something in the middle price class like Buick, Nash and Chrysler, and something in the higher price class like Pierce-Arrow, Cadillac and Lincoln—one of those—to adopt safety glass all around; that you had offered to sell at various prices, according to Mr. Higgins, and that Mr. Higgins said that you expected to keep after the situation until you struck a price at which you thought these men would be interested. Did either Mr. Higgins, or yourself, make any such statement in this conversation?

A. I think, in part, we did, because we firmly believed that the way to develop this business, and in a manner that would be helpful and desirable to the industry, was to get a manufacturer in each price class, if possible, to adopt safety glass. We believed that thoroughly, and talked it [fol. 865] freely and frequently to our competitors, and, I dare say, we did to Mr. Edwards and Mr. Haskell that day.

Q. But did Mr. Higgins, in that conversation, say anything to the effect that you expected and would endeavor to get one automobile manufacturer in each of those price classes, irrespective of what price you got for the product?

A. I am sure he made no such statement in regard to the price.

Q. Did you make such a statement?

A. I have not, nor have I heard such a statement made in my presence by any representative of the company.

Q. Do you know whether or not it is an advantage in selling plate glass, to have orders calling for a large number of a particular size?

A. I do, very distinctly, from years of experience.

Q. Will you explain briefly whether it is an advantage to your company to have orders for a large assortment of sizes of plate glass—with particular reference to finding defects in the sheet from which you have to cut?

A. The character of the plate glass business is such—with reference particularly to defects—that it is very distinctly to the advantage of the manufacturer to have an assortment of sizes, rather than a specification confined to a limited number of sizes.

Q. Why is that, Mr. Wherrett?

A. Because, with the defects that you are bound to find in plate glass, inherent to all plate glass product, you must cut your glass with due respect to those defects. Now, if you have an assortment of sizes, you have a much better opportunity of cutting with a minimum shrinkage than if you have just a few sizes; the result being in the latter case, [fol. 866] that you have an increased shrinkage, indirectly meaning waste that goes into the cullet bins, pieces that have to be thrown away, and, secondly, residual sizes, sizes that have questionable or no merchantable value, which you put into stock.

Q. It has appeared in the testimony in this case, that the Pittsburgh Plate Glass Company charged Duplate Corporation a commission, first of 5 per cent, and afterwards of 3 per cent, on the sales of Duplate. Will you tell the Master whether or not, in your opinion, those commission charges were fair and reasonable—at least, from the standpoint of the Duplate Corporation?

A. Well, they proved from experience to be quite inadequate, but we started out without definite knowledge as to just what it cost to sell this product, although we, the Pittsburgh Plate Glass Company representatives, knew quite well from other experiences that the commission was very small; however, we decided upon that basis purely in an experimental way, and tried it out.

Q. Now, do you think either of those commissions were too high, from the standpoint of the Duplate Corporation?

A. Decidedly not.

Q. It appears that the Pittsburgh Plate Glass Company gave the Duplate Corporation a special discount of 10 per cent on one-eighth inch plate glass, compared with the prices charged to other purchasers, and that this was made effective as of June 1929. Why did you make that discount?

A. It came about in this way: The Duplate Corporation had been making a very sorry showing, having a consistent loss, a substantial loss, and some of our associates on the board of directors thought that some consideration should be shown to the Duplate Corporation in the cost of the [fol. 867] raw materials, to enable them to make a better showing, and prove a little incentive; and it was for that reason alone that this 10 per cent differential was allowed.

Q. I believe the du Pont Viscoloid Corporation also al-

lowed a 10 per cent reduction in the price of pyralin, and made it effective as of the same date?

A. That is correct.

Q. Was that for the same reason?

A. Exactly.

Q. As you go about, do you pay any attention to the quality of laminated glass that you see in automobiles in the highways and other places—for example, Ford windshields?

A. I do, most decidedly.

Q. What did you observe as to the character of the Ford windshields which were produced during this accounting period, which began January 1, 1928, and running to May 31, 1930?

A. Well, I do not know that I could define exactly the period.

Q. I am not speaking of the period, I am speaking of cars that were made during that period.

A. There is no question about that; it is so obvious that cars produced during that period contained laminated glass in the windshields that was quite inferior, it deteriorated and was quite unsatisfactory for the purpose, quite unsightly; and, as a matter of fact, proved to be quite a detriment to the development of the safety glass business.

Q. Are you referring particularly to the Ford windshields?

A. I am referring primarily to the Ford windshields.

Q. And do you know whether or not the fact of the character of the Ford windshields produced in that period [fol. 868] is a matter of common knowledge and common talk in the glass industry?

A. Distinctly so.

Q. Do you remember when Libby-Owens entered into competition in the laminated glass field?

A. I do not, I should have to make just a guess at it, I do not remember the exact time.

Q. Mr. Higgins testified it was in the latter part of 1928.

A. That is also my recollection.

Q. What was the character of the competition of the Libby-Owens Company; was it active and keen competition?

A. Extremely active. Almost from the beginning of their entry into the business we began to feel keen compe-

tition, in that they quoted lower prices than we quoted, or any other manufacturer in the business quoted.

Q. Did they take business away from your company on price?

A. They took business, where we were competitive, because they made a lower price; yes.

Q. Mr. Wherrett, assuming that in the year 1928 the Duplate Corporation sold approximately 962,448 square feet of Duplate, will you please tell the Master whether or not in your opinion the Pittsburgh Plate Glass Company would have sold that number of square feet of three-sixteenths inches or one-fourth inch plate glass if no laminated glass had been sold at all; excluding, however, the sales of laminated glass to the Fisher Body Corporation and the Fleetwood Corporation.

A. I am quite positive that we would; I have every reason to believe so.

Q. Assuming that the sales to the Fisher and Fleetwood Corporations were approximately 558,137 square feet of Duplate, is it your opinion that, deducting that amount [fol. 869] from the total Duplate sales which I have mentioned, leaving 404,311 square feet of Duplate, your company would have sold that number of square feet of one-fourth inch and three-sixteenths inch glass if you had not sold any laminated glass at all?

A. It is decidedly my opinion.

Q. Assume that in the year 1929 the sales of Duplate by the Duplate Corporation were approximately 2,019,360 square feet, the sales to the Fisher Body Corporation, including Fleetwood were approximately 640,155 square feet, and deducting the latter amount from the former leaves 1,379,205 square feet of Duplate. Is it your opinion that in that year the Pittsburgh Plate Glass Company would have sold that many feet of one-fourth inch or three-sixteenths inch plate glass if no laminated glass had been sold at all?

A. It is.

Q. In other words, as I understand your testimony, the sale of this laminated glass, to the extent that you have mentioned, was just replacing one product by another; is that right?

A. That is correct.

Q. I mean, one of your products for another.

A. That is right.

Q. And if there had been no sales of this laminated glass, your company would have sold an equivalent area, in square feet, of one-fourth inch and three-sixteenths inch plate glass, which, in the year 1929, would have been 1,379,205 square feet?

A. That is correct.

Q. Assume that in the first five months of 1930 the sales of Duplate were approximately 617,728 square feet, and in the same period, the sales of Duplate to Fisher and Fleetwood were approximately 23,272 square feet, and deduct- [fol. 870] ing the last mentioned figure from the one immediately preceding in this question, leaves 594,456 square feet. State whether or not, in your opinion, the Pittsburgh Plate Glass Company would have sold that area, in square feet, of one-fourth inch or three-sixteenths inch plate glass if no laminated glass had been sold at all by the Duplate Corporation.

A. I am very positive that they would.

Q. And you understand in this question when I say, "If no laminated glass had been sold at all", in all of these questions, I mean, if no laminated glass had been sold by the Duplate Corporation?

A. I understand.

Cross-examination.

By Mr. O'Shea:

Q. Mr. Wherrett, are you sufficiently familiar with the facts in connection with the laminated glass business of Duplate Corporation to enable you to say whether or not that company did sell glass at prices which produced no profits?

A. Yes, sir.

Q. Well, I understand by that that they did make such sales?

A. We did.

Q. That is all.

(Adjournment on call of Master.)

Vol. II

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1935

No. 767

DUPLATE CORPORATION AND PITTSBURGH PLATE GLASS COMPANY, PETITIONERS,

vs.

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA

No. 768

DUPLATE CORPORATION AND PITTSBURGH PLATE GLASS COMPANY, PETITIONERS,

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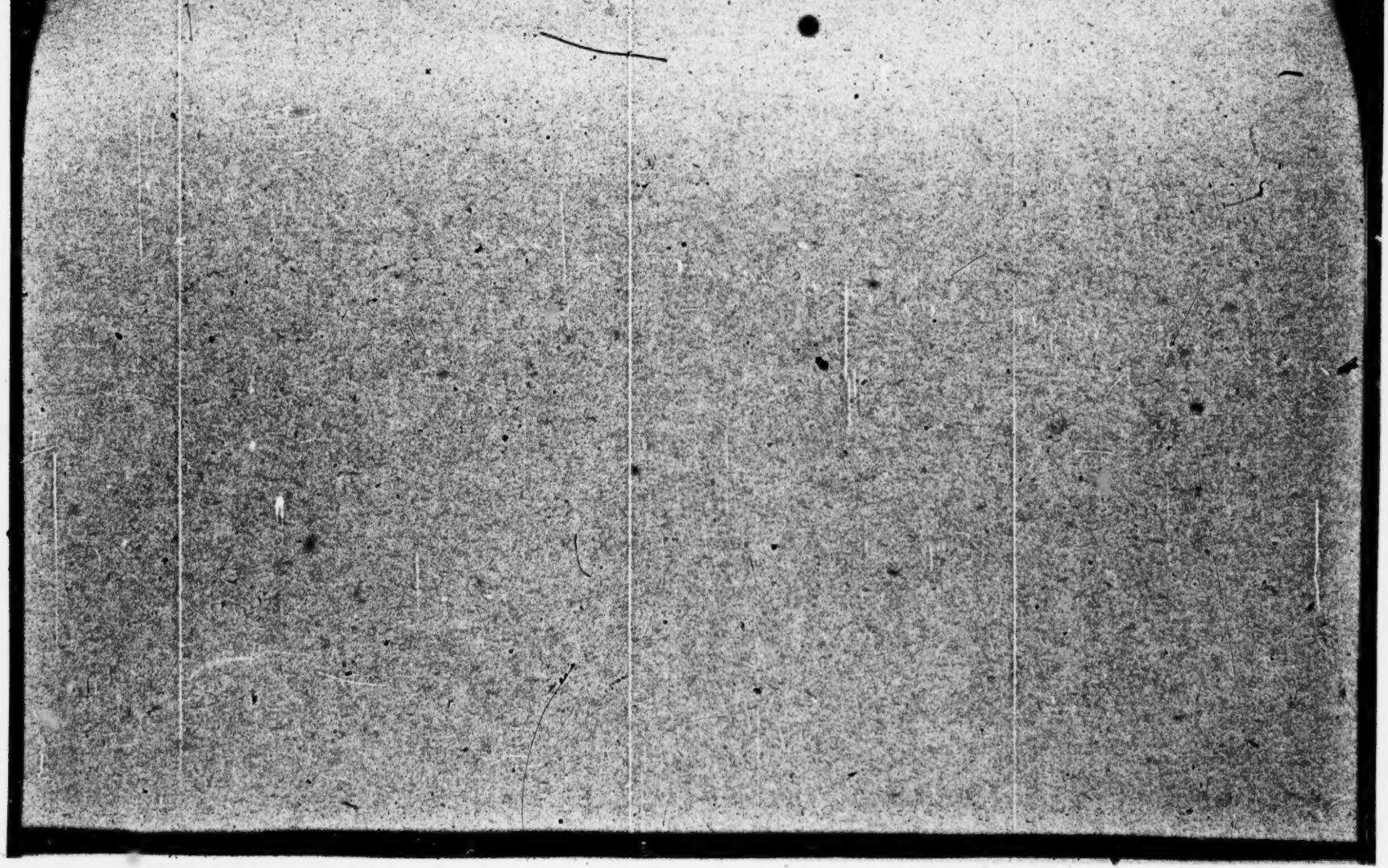
ON WRITS OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE THIRD CIRCUIT

PETITION FOR CERTIORARI FILED FEBRUARY 21, 1936.

CERTIORARI GRANTED MARCH 30, 1936.

VOL. II



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[fol. 871] Pittsburgh, Pennsylvania,
Monday, November 28, 1932.

Met pursuant to adjournment.

Present: G. Dixon Shrum, Esq., Master; Ambrose L. O'Shea, Esq., of counsel for the plaintiff; Marshall A. Christy, Esq., William Watson Smith, Esq., L. E. Hickman, Esq., counsel for the defendants.

H. B. Higgins, a witness recalled on behalf of the defendants, having been previously duly sworn, testified as follows:

Direct examination.

By Mr. Smith:

Q. Mr. Higgins, do your duties make it necessary for you to familiarize yourself with the operations of the various warehouses in selling the product of the Pittsburgh Plate Glass Company?

A. Yes.

Q. And also with the operations of the various warehouses in selling Duplate?

A. Yes.

Q. And do you have warehouses scattered over a large part of the country?

A. The entire section east of the Rocky Mountains.

Q. Are you able to state from your knowledge of the operations of the warehouses whether or not the warehouses made any profit in selling Duplate during the accounting period?

A. Yes.

Q. Did they or did they not?

[fol. 872] A. They did not.

Q. How did it happen that the Pittsburgh Plate Glass Company became interested in organizing the Duplate Corporation and starting into this business of selling laminated glass?

A. You want the circumstances leading up to it, Mr. Smith?

Q. Yes.

A. A Mr. Edwards, I think, from the du Pont Company came out to Pittsburgh, probably in the early part of 1927. He had heard of the research work that we had been doing on laminated glass, and came to talk to us. He called on me, and he pointed out that the du Pont Company had a very large capacity for the production of pyralin, which had been mainly employed in supplying sheeting for open cars—for the rear windows of an open car and the sides to the open cars.

Q. You mean a cape top car?

A. I mean a regular touring car with the curtains which are glazed, as you know, with pyralin. That that capacity had been idle since the closed car developed, and that consequently the du Pont Company had been doing a great deal of work to see what could be done to develop a market for that idle capacity. He explained that they had improved the pyralin substantially as result of their research work; that they felt it was a more satisfactory product than it had ever been for laminated glass, and that they were considering going into the laminated glass business, and he wanted to know what our research work had developed and I told him. Subsequent to that a Mr. Brokaw, who was their plant manager at Arlington, came out and talked to us.

Q. Whose plant manager?

A. The du Pont Viscoloid Company's plant manager at Arlington. We had several conferences with other officials of the du Pont Viscoloid Company, and finally Mr. F. B. [fol. 873] Davis, who was president of the company, came out to talk to us. He saw Captain Brown and Mr. Wherrett, I think, and myself. He suggested that the two companies should join in their efforts to produce laminated glass. He explained what the others had of their position with respect to idle capacity; said it was a matter of great interest to them to see this product developed, and that he thought it would be a mistake for the two of us to go about it independently; that our two companies had made developments that complemented one another, and he hoped that we would join them in the formation of a company to produce laminated glass. He made it very plain that if we were not willing to do that, that his company would go into the business themselves; that they felt it was a matter of sufficient importance to them to justify their entry into the business.

Q. Prior to this time you said that your company had been making experiments with laminated glass?

A. Yes.

Q. Did you experience any difficulties in making a satisfactory product experimentally?

A. Yes, we did, Mr. Smith. We had never up to that time been able to produce a product that we felt was satisfactory, and we had not made sufficient progress with our own work to convince us that we could make a product that was satisfactory, and really I suppose the determining influence there was the statements of the du Pont Company's representatives as to the advancement in the art of making pyralin and also the discovery which they had made some time prior to that of the method of protecting pyralin against discoloration. At that time the real difficulty with laminated glass we all thought was discoloration. Subsequently edge separation proved to be a more difficult problem, but [fol. 874] as we knew the business at that time the real objectionable feature of laminated glass was its tendency to discolor in sunlight.

Q. Was that caused by the glass or by the pyralin?

A. Both, Mr. Smith. The pyralin, as it had been made before, discolored very much more rapidly than it does now. It is affected by the sun because we discovered that what breaks down the fabric of the pyralin itself is the ultraviolet rays of the sun. Daylight, as we see it, does not affect the pyralin. It is the invisible light that destroys it, and the manufacture of glass that will screen out the invisible light and protect the pyralin, gives a light that will not discolor.

Q. Do you make that kind of glass?

A. Yes.

Q. That is, in your ordinary commercial production?

A. Yes.

Q. You said, I believe, you supposed the determining factor that induced you to go into this business was the improvements in the pyralin. That was one of the subjects these people, Messrs. Edwards, Brokaw and Davis, discussed with you and the other representatives of your company?

A. Yes.

Q. At that time state whether or not there had been any market established for laminated glass.

A. No particular market except with individuals who could afford to pay half the cost of a Ford car to have it glazed with laminated glass.

Q. Was that a comparatively small market?

A. Very small, yes. You won't find many people who are willing to pay $200 to put glass in an automobile.

(Magazine marked Defendants' Exhibit "KK.")

Q. Mr. Higgins, I show you Defendants' Exhibit "KK," being a magazine entitled "1932 Statistical Issue, Automo- [fol. 875] tive Industries." Will you state whether or not that magazine is a journal of recognized standing in the glass trade and the automobile industry?

A. It is.

Q. How long have you been familiar with that magazine?

A. I think ever since I have been in Pittsburgh, Mr. Smith—fifteen years or more perhaps.

Q. And have you had occasion at times to consult that magazine?

A. Always have used it and subscribed to it.

Q. Will you state whether or not in the trade the information in that magazine is considered as accurate and reliable?

A. It is.

Q. And is it considered accurate and reliable enough to be the basis of business transactions in the trade

A. Yes, indeed.

Q. And would you so consider it, and be willing to make a business transaction on the faith of the accuracy of that exhibit?

A. Yes.

Mr. Smith: If the Master please, we offer in evidence the table "New-Car Registrations" from page 293 of this exhibit, and ask that the same be copied into the record, the offer being confined to the years 1928, 1929 and 1930.

Mr. O'Shea: Objected to on the ground it is incompetent, irrelevant and immaterial; on the further ground that the exhibit offered has not been properly proved.

The Master: We will accept the exhibit subject to Mr. O'Shea's objection.

[fol. 876] New-Car Registrations (Approx.)

Make	1928	1929	1930
Auburn	11,550	19,300	13,370
Auburn	11,550	18,500	11,460
Cord	.....	800	1,910
Austin	.....	.....	4,430
Chrysler Motors	346,780	356,900	228,390
Chrysler	152,110	87,500	61,940
DeSoto	15,050	61,700	35,870
Dodge	154,220	119,800	65,190
Plymouth	25,400	87,900	65,390
DeVaux	.....	.....	.....
Durant	73,870	49,400	21,800
Ford Motor Co.	505,130	1,362,400	1,077,460
Ford	498,880	1,356,000	1,073,030
Lincoln	6,250	6,400	4,430
Franklin	7,690	11,100	7,610
Gardner	3,290	2,100	.....
General Motors	1,343,470	1,315,700	920,810
Buick	203,160	162,300	112,200
Cadillac	18,830	15,500	12,280
Chevrolet	796,870	807,300	629,400
La Salle	19,490	21,000	11,450
Marquette	.....	16,000	12,540
Oakland	38,400	33,000	22,020
Oldsmobile	76,290	92,600	48,510
Pontiac	190,430	163,800	69,550
Viking	.....	4,200	2,860
Graham-Paige	60,570	62,600	30,650
Hudson Motors	233,740	262,900	95,390
Essex	183,680	198,000	64,410
Hudson	50,060	64,900	30,980
Hupmobile	57,490	45,900	24,720
Jordan	4,400	2,300	.....
Marmon	15,290	22,300	12,580
Nash	119,200	108,800	51,950
Packard	44,460	46,200	28,800
Peerless	8,020	8,600	4,090
[fol. 877]			
Reo	22,130	17,900	11,640
Studebaker Interests	116,920	94,400	64,400
Esrkine	23,480	8,000	.....

Make	1928	1929	1930
Pierce-Arrow	5,940	8,700	6,910
Studebaker	87,500	77,700	57,490
Stutz	2,510	3,100	830
Willys-Overland	239,450	206,700	66,890
Whippet	197,910	168,000	19,320
Willys			33,250
Willys-Knight	41,540	38,700	14,320
All others	33,470	16,700	4,780
Total	3,249,430	4,015,300	2,670,590

Prior to 1931, 3.5 per cent has been added to new car registrations to obtain the Automotive Industries estimate of sales, because error between factory deliveries and new car registrations to this amount has been found by experience. A change in experience shows the factor should be 0.6 per cent for 1931 and 1.7 per cent for 1930; these percentages, respectively, have been added.

Mr. Smith: We offer in evidence the short schedule on page 296 of this magazine, Exhibit "KK," being the schedule entitled "Average Retail Price of Passenger Cars," and the portion we offer is for the years 1927, 1928, 1929 and 1930, and we would like to have that copied into the record.

Mr. O'Shea: Same objection.

The Master: Accepted subject to objection.

Average Retail Price of Passenger Cars

1927	$981
1928	899
1929	830
1930	788

[fol. 878] Mr. Smith: We also offer in evidence for the years 1927 to 1930, inclusive, the schedule showing, "Average Retail Price of Trucks," found on page 294 of that exhibit, and ask to have that copied into the record.

Mr. O'Shea: Same objection.

The Master: Accepted subject to objection.

Average Retail Price of Trucks

1927	$1,168
1928	1,041
1929	961
1930	904

Mr. Smith: We offer in evidence for the years 1927, 1928, 1929 and 1930 the table entitled, "Per cent of Total Car Sales by Leading Groups," found on page 295 of this magazine, and we ask to have this table copied into the record.

Mr. O'Shea: To this other document, whatever it may be, exhibit or testimony, I have the same objections, and take an exception to the Master's ruling.

Per Cent of Total Car Sales by Leading Groups

	1927	1928	1929	1930
Ford	15.25	15.54	33.92	40.70
General Motors	42.53	41.34	32.79	34.15
Chrysler	10.60	10.65	8.87	8.58
Hudson-Essex	8.60	7.20	6.52	3.55
Willys-Overland	5.32	7.37	5.14	2.51
Studebaker	3.83	3.59	2.35	2.41
Nash	4.19	3.67	2.72	1.92
Graham	.71	1.86	1.57	1.16
Packard	1.19	1.37	1.15	1.08
Hupmobile	1.29	1.77	1.14	.93
Durant	2.17	2.29	1.23	.82
All others	4.32	3.35	2.60	2.19
Total	100.00	100.00	100.00	100.00

[fol. 879] Q. Mr. Higgins, when you were on the stand at the last meeting before the Master you were asked some questions about this special cutting loss. As I understand it, the exhibit offered in evidence when Mr. McHenry was on the stand reflected the special loss in these odd sizes of glass that were actually sold. Do you know whether or not in the year 1930 the Plate Glass Company had on hand any amount of glass of odd sizes which was produced by the fact that the automobile orders were so limited in point of size—that there was so little variation in those orders in point of size?

A. Yes, we had a very large accumulation of residue, as we sometimes call it, that resulted from cutting automobile sizes.

Q. Have you the figures showing the amount of that in 1930?

A. Yes.

Q. What are they—in feet?

A. At the end of 1930—this was December 30th—when the inventory of one-eighth inch glass at Creighton was taken, we crossed off as having no value 1,191,730 feet. Now that figure represents my judgment of the loss that we would sustain in the future on our stock of one-eighth glass at Creighton.

Mr. O'Shea: Objected to on the ground it calls for a conclusion, on the ground it is incompetent, irrelevant and immaterial, and as constituting proof of some loss that occurred after the accounting period.

The Master: We will admit it subject to the objection.

(Exception noted to plaintiff.)

Q. Was this glass small sizes or odd sizes, or both?

A. Both.

[fol. 880] Q. And what, in your judgment, occasioned that large accumulation of those small and odd sizes?

A. Cutting of automobile sizes.

Q. And you explained the reason of that?

A. I explained that in my last testimony.

Q. Now, did your company take any inventory at any time except on the last day of December of the year?

A. No.

Q. Therefore, there would be no inventory taken near the close of the accounting period, which would be May 31, 1930?

A. No.

Q. Were the operations of your company during the year 1930 in the production of glass more or less uniform as to quantities? I mean by that did you make it all in the first half of the year or all in the second half of the year, or how was it?

A. I don't believe I could answer that, Mr. Smith. I take it you want to know relatively what part of the glass might have been made in the first five months and what part in the second?

Q. I am wondering if there was any way to ascertain that.

A. Oh, yes, it could be ascertained, but I don't happen to know. The figures could be obtained from the accounting department.

Q. I understood you to say no figures could be obtained from the accounting department to show this inventory.

A. No; but you wanted sales, did you not?

Cross-examination.

By Mr. O'Shea:

Q. Mr. Higgins, you spoke of a Mr. Edwards of the du Pont Company who came to you in 1927 for the avowed purpose, apparently, from your testimony, of inducing you [fol. 881] to enter into this laminated glass business. Was that the Mr. Neilson Edwards who has testified in this case?

A. Oh, no. I am not altogether sure of the name, Mr. O'Shea, but he was in the employ of the research department of the du Pont Viscoloid Company.

Q. In any event, it was not the Mr. Neilson Edwards who was connected with the Triplex Safety Glass Company?

A. No, indeed.

Q. This alleged cutting loss of 1,191,730 square feet. Do you know what your company did with it?

A. Well, that wasn't a cutting loss, Mr. O'Shea. That represented glass which, in my opinion, would have to be depreciated in value to the point that it possessed little book value. It was an unrealized loss—let me put it that way. We had the glass in stock, but it was in sizes that were not merchantable. It was dead inventory; subject to heavy future shrinkage.

Q. I say do you know what you did with it.

A. I know what we did with part of it.

Q. What did you do?

A. A lot was sold for strips; a lot is still up there; a lot was cut down. Probably anywhere from 33⅓ to 40 per cent. was loss—as additional cutting loss.

Q. This percentage that you are giving now is an estimate on your part I assume?

A. Yes, that is correct, but I was sufficiently confident of it to mark off the books entirely the total value of this number of feet.

Q. You mean you gave somebody instructions in your accounting department to mark it off?

A. Yes, exactly.

Q. Have you got it marked off?

A. Yes.

Q. What did you do when you sold it?

[fol. 882] A. It went into our sales, of course, subsequently.

Q. Went back in again?

A. Yes, if it was sold, and as it was sold.

Q. In 1926 and 1927 did you have any of these small sizes of one-fourth inch plate glass?

A. Yes.

Q. Would your books show, Mr. Higgins, if you know it, whether a particular warehouse of yours had lost any money in the years 1928, 1929 and the first five months of 1930?

A. Certainly.

Q. Are you able to state from your recollection how much, let us say, the Chicago warehouse lost in the year 1928?

A. No.

Q. You would have to go to the books for that?

A. Yes.

Q. And that is true of all other warehouses?

A. That is correct.

Q. Are you able to state from your knowledge of the business whether the warehouses sold their products at a higher price than that which the home office billed the warehouse?

A. Yes, that is the object of having warehouses.

Q. You mean by that that is their practice, that they do sell for higher prices?

A. That is the practice. We operate them for a profit.

Q. And it is your policy, or your attempt to maintain the ideal of having the warehouses make a profit and be self-sustaining?

A. Correct.

Q. I don't know whether this is of much importance except that I understood you to say in your direct testimony

that it has always been your custom to make discolored glass in your ordinary production. Am I correct?

[fol. 883] A. To make what?

Q. Discolored glass.

Mr. Smith: I think there was no such testimony.

Q. I was wrong about that, was I?

A. I don't know what that could refer to.

C. L. McHenry, recalled on behalf of the defendants, having been previously duly sworn, testified as follows:

Direct examination.

By Mr. Christy:

Q. When you were last on the stand, Mr. McHenry, you were asked by Mr. Smith (see page 1213 of the manuscript record): "Q. Mr. McHenry, you were asked a question with respect to Exhibit "Z", whether that exhibit showed prices charged by the Duplate Corporation. And you gave your answer. Does that exhibit show the prices that were actually paid by the various automobile manufacturers?" Your answer to that question was as follows: "A. In this exhibit where it is marked—like sales to Moon Motor Car Company, or Bender Body Company, the sale is billed to the Pittsburgh Plate Glass Company at the amounts shown in this exhibit, and the amount billed to the Moon Motor Car Company, or any other company, would be the same as shown in this exhibit, plus 3 or 5 per cent., whichever the case might be." Is that answer correct?

A. It is not. The amount as shown on that exhibit would be billed, or was billed direct to the customers as shown on the exhibit.

Q. Then, these amounts shown on the sheets of Exhibit "Z" under the columns "Gross Sales" and "Net Sales" in dollars and cents, do in fact all of them include these [fol. 884] commissions of three or five per cent., do they not?

A. They do.

Q. And the commission of three or five per cent. is in-

cluded on the other side of the account in the column "Cost of Sales." Is that correct?

A. It is.

Q. Now, I refer you to another statement of your testimony (commencing at the bottom of page 1205 of the transcript): "Most of the orders from the warehouses are from the automobile manufacturers, and the only difference in sales price between the Pittsburgh Plate Glass Company and the warehouse and the Duplate Corporation, is 3 per cent. commission, or 5 per cent.—whichever period it happened to be in." Is that statement to be understood with the explanation you have given just above?

A. What I was trying to convey is that the sales price as shown in Exhibit "Z" to all customers is the same as listed. The only difference between the sales from Duplate to the Pittsburgh Plate Glass Company—the gross sales isn't changed but an entry is made for the commission.

Q. And that, as you say—that commission—is included in the other side of the account, Exhibit "Z," in the column "Cost of Sales"?

A. It is.

By Mr. Smith:

Q. Mr. McHenry, will you turn to your Exhibit "X"? In your testimony—I read from the record, page 1097—you testified as follows at the last hearing: "Q. And at what rates were many of these replacements made, Mr. McHenry? A. Some of them, the rate for the glass was as high as $4 a foot, because that was what the dealer had paid for it. Q. That is, the dealer had to pay $4 a square foot for the [fol. 885] piece of Duplate which he used to replace the defective one; is that what you mean? A. Yes, sir." What were the replacements that are referred to in that schedule where it appears that the cost to the dealer had been as high as $4 a square foot? Will you give us an illustration of one or two of them?

A. These high prices are the exception rather than the rule. I had in mind under January, 1931, page 2, Exhibit "X," you will see there a sale to George Feathers Company, 75 feet 6 inches, $500.77. Let me explain. This is not a sale to them. This is a charge from George Feathers & Company to the Duplate Corporation for replacing 75

feet 6 inches, $500.77. Now the reason for this high price, which in this instance is $6.63——

Q. $6.63 a square foot, you mean?

A. Yes, $6.63 a square foot—is that George Feathers & Company are located in Melbourne, Australia. The Duplate Corporation sold George Feathers & Company the glass which they used to make this replacement on Bill No. 871; 531 feet 8 inches at $2.50 a square foot; 194 feet 5 inches at $2.25 a foot, and in invoice No. 872, May, 1929, 262 feet 6 inches at $2.25 a square foot, but by the time Feathers & Company paid their duty, their exchange, and the charge for having the glass installed their charge back to us was, as indicated in Exhibit "X," $6.63 a foot.

Q. The charge for having the glass installed. You mean by that the cost of installation? Is that what you mean?

A. The installation of the glass that they used.

Q. And also they would have transportation that you mentioned?

A. Transportation.

Q. So that brought the price that the glass was actually sold at up to a replacement of six dollars a square foot?

[fol. 886] A. Yes.

Q. Will you give us another illustration of those high prices?

A. In June, 1931, the second page, is a replacement charge from Seaman Body Corporation, 2 feet 11 inches, $15. This replacement was made by Begg Motor Company in Vancouver, British Columbia, in which instance the duty, transportation, and so on runs the cost up to practically $5 a foot.

Q. Can you give us another illustration?

A. In December, 1930, the second page, showing a charge from the Duplate Company of Canada, 31 feet 6 inches, $143.80. Also another item on the same page from Duplate of Canada, 12 feet 8 inches at $4 a square foot. These replacements were made in the Dominion of Canada, and the cost of glass to them would include duty as well as on the other export shipments.

Q. By taking the number of feetage shown in the column headed "Feetage" in this exhibit and dividing into the glass cost, you can get the cost per square foot of glass, can you?

A. Yes, you can, with the exception of some items that they did not separate their installation charges, and these

columns would appear blank and all the charge would be under glass cost.

Q. I notice some of the lines in the column headed "Installation" are left blank.

A. In those instances the charges for installation are probably carried in the glass column because they were not segregated.

Q. I understand that it appears from the evidence in this case that the Ford windshields that were made by the Triplex Company were of size 14 inches by 44 inches. Is that your understanding?

Mr. O'Shea: Objected to on the grounds it is incompompetent, irrelevant and immaterial. There is no basis [fol. 887] laid for this witness's knowledge as to the facts.

Mr. Smith: I think that is in the record.

The Master: We will hear the answer subject to the objection.

A. It is my understanding, and our company made windshields of the same size for the Ford Company.

Q. Will you state whether or not 14 x 44 inches is an exact bracket size?

A. It is.

Q. Would that affect the amount of cutting loss?

A. It would. We filed in our exhibits of cutting loss a diagram of a Ford windshield showing no loss in cutting.

Q. Is the reason for that that it is an exact bracket size? Is that the reason?

A. That is the reason.

Q. Mr. McHenry, do you wish to make any explanation or correction of your last answer as to the diagram?

A. I prepared a diagram in pencil showing the size 14 x 14, showing no cutting loss. If this is not in the exhibits filed, it is a correct statement of loss.

Q. Well, whether or not there is an exhibit here, it is a perfectly obvious point, is it not, that the bracket size affects the cutting loss?

A. Yes, sir.

Q. Mr. McHenry, did you take occasion to add up or have anybody add up the amount of sales which you have indicated as made to warehouses on this Exhibit "Z"?

A. I did, and I find that our sales made to warehouses were five per cent. of the total sales.

Q. That is, in Exhibit "Z" ninety-five per cent. are sales made to customers, like Dodge Brothers or Fisher Body Corporation and other customers indicated, and only five [fol. 888] per cent. of the whole are shown on this exhibit as sales to Pittsburgh Plate Glass Company's warehouses?

A. That is it.

Cross-examination.

By Mr. O'Shea:

Q. Mr. McHenry, in figuring that five per cent., let me have your figures, will you?

(Recess taken until 1:45 P. M.)

Afternoon Session

C. L. McHenry, resumes the stand.

Cross-examination (continued).

By Mr. O'Shea:

Q. (Previous question read.)

A. The total sales during the accounting period are 4.141,207 feet. Of this, 218,954 feet were shipped direct to warehouses, making the percentage 5.3.

Q. The 4,141,207 includes the shipments to Fisher, does it not?

A. It does.

Q. And those invoices to Fisher were neither invoiced through the warehouses nor were they shipped by the warehouses to Fisher, were they?

A. Shipments were made direct from Duplate to Fisher Body Company.

Q. And the invoices—where did they come from?

A. It is my impression that this billing was made direct from general office.

Q. Now, do you know how much the total sales to Fisher were?

A. The total net sales to Fisher and Fleetwood during the accounting period was 1,221,564 square feet.

[fol. 889] Q. What were the gross?

A. I do not have the gross here.

By Mr. Smith:

Q. Does that include Cadillac as well as Fisher and Fleetwood, or only Fisher and Fleetwood?

A. It is listed here as Fisher and Fleetwood.

By Mr. O'Shea:

Q. Did you have any other customers that were billed direct by the general office?

A. I could not answer that without checking up the records.

Q. Well, haven't you got it checked up in order to get the 4,141,207?

A. Yes, I have that.

Q. Have you got a record there showing what was invoiced from Pittsburgh Plate to its warehouses—the total? I am speaking now of the invoices to the warehouses and the shipments direct to the customers.

A. No, I have not.

Q. Well, in any event, your percentage of five per cent. would substantially increase if you took the proportion between the total sales, including those which were invoiced to the warehouses but shipped direct to customers, and those where the shipment was from the Pittsburgh Plate Glass Company to the warehouse, would it not?

A. Naturally it would be increased.

Q. Now, then, when you arrived at your proportion of .037 per cent., or rather 3.7 per cent., as testified by you on page 1204 of the record, you did not use there the orders that were billed and shipped direct from Pittsburgh Plate Glass Company to the customers?

A. This percentage of 3.7 that you refer to is the proportion of Duplate sold to plate glass and Duplate sold by the warehouses.

[fol. 890] Q. And in arriving at that proportion you used the figure $888,987.30, did you not?

A. I did.

Q. Now, in that amount you didn't use the amounts billed to Fisher and Fleetwood direct, did you?

A. Not if they were billed direct from general office, no.

Q. Well, weren't all the Fisher and Fleetwood billed direct from general office?

A. I think they were.

Q. Mr. McHenry, did your warehouses have any set charge per foot of glass where they installed glass?

A. Where they installed glass in cars for replacement you refer to?

Q. I don't know what they installed it for. At any time, whenever they installed glass, did they have any set price per foot for installation, whether it was for replacement or original installation or what not I do not know?

A. I do not know.

Q. Well, who would know that?

A. Probably Mr. Higgins.

Q. Wouldn't your records in the home office show whether they had any set price per foot?

A. They would not, as each warehouse was operated under a different manager, and the setting of glass—the price of installation—would be determined as to the difficulties they would encounter while on the job.

Q. Installation is purely a labor job, is it not?

A. It is, but on selling a job for glazing for building, for instance, an estimate is made by the estimating department in the warehouse and they furnish a bid including the glass and the glazing. Now, just what price they use in that glazing I do not know. It depends a great deal on the location of the warehouse, whether the glazers' union [fol. 891] would affect the glazing job or not.

Q. Well, now, you are talking—when you speak of glazing are you talking about putting glass into a building, or does that include putting Duplate glass into a vehicle?

A. The same would hold good on a replacement or glazing an automobile.

Q. Then the term you use in a generic sense for buildings, vehicles or otherwise?

A. Yes, sir.

Q. And, as I understand it, whenever anyone comes in for putting a piece of glass in their automobile the warehouse gives them an estimate of how much that will cost. Is that it?

A. That is my idea of it.

Q. They don't tell them how much it will cost, the same as selling a hat or a pair of shoes?

A. They would give him a price on the glass put in his car.

Q. Plus the cost for installing. Is that it?

A. The installing cost would be in their price of the glass and installation. For instance, I got a price from the Pittsburgh warehouse for glazing a certain car for a friend of mine. They gave me a price—say $75—which included everything. The car was delivered to them and went away with the laminated glass installed.

Q. What you mean is they didn't separate the price for the glass and the price for the installation?

A. No, they did not.

Q. Well, don't they sometimes do that?

A. I do not know.

Q. Take your Exhibit "X," for example; turn over there to the month of November, 1930, and take the first item, a credit to the Buffalo warehouse for twenty-one feet and eight inches, giving the price of the glass for [fol. 892] that to be $38.27, the freight to be fifty-five cents, the edgework $3.89 and the installation $10.50, making a total of $53.21. Wouldn't that entry seem to indicate that the credit was divided between the price of the glass and the other items, including the item of installation?

A. That is true, and that replacement may not have been done by the Buffalo warehouse. It may have been a jobber who bought his glass from the Buffalo warehouse, and when he made the installation, in order for him to get credit, it was necessary for him to itemize his bill so that it could be passed on before credit was approved.

Q. You say it may not. I assume by the use of the word "may" that it may or may not?

A. That is true.

Q. The warehouses are all equipped to install, are they not?

A. They are.

Q. They have labor there to install the glass?

A. They have.

Q. Wouldn't you say this would indicate possibly, at least, that the warehouse installed a piece of glass and charged $10.50 for it?

A. It is possible.

Q. Now, was there a profit to the warehouse in that $10.50?

A. Well, that I could not determine until I would have their cost of that installation. It may be a loss, as it was in many instances that I know of?

Q. Well, take a particular instance where I bring my car in to have a windshield installed and they charge me for it—for installing it, as I understand it. Now, wasn't it their endeavor to get a profit on that labor of installing that windshield?

A. It is, but if they break a piece of Duplate in making up your windshield, that would make them show a loss rather than a profit.

[fol. 893] Q. Now, did you give the plaintiff in this case credit in this account for any installation at all that was made by the warehouses?

A. I don't just understand that question.

Q. Well. we have an account filed here by you that states that in a given instance a certain amount of glass was sold to the Buffalo warehouse, and, as I understand the way that account is made up, you have given credit to the plaintiff in this accounting for the value of that glass as it was billed from the Pittsburgh Plate Glass Company to the Buffalo warehouse, and no credit was given there for any possible installations that the Buffalo warehouse may have performed on that glass. Is that correct?

A. That is correct. We have not taken any profits beyond the sale of glass to the warehouse or to the automobile dealer.

Q. Now, similarly, these boxing charges here. No credit has been given to the plaintiff in this case for any of the boxing charges in the original account. Isn't that so?

A. That is true.

Q. Although, as a matter of fact, the Duplate Company did all of the boxing but collected nothing for the labor or material in the boxing?

A. That is true.

Q. Now, what is this Duplate Company of Canada which appears intermittently on your Exhibit "X"?

A. That is a concern to which we sell glass, the same as any outsider. As to its organization, I know nothing about it.

Q. Do you know whether it is a subsidiary of the Pittsburgh Plate Glass Company?

A. It is not to my knowledge.

Q. Do you know whether it was a subsidiary of the entity known as the Duplate Corporation—that is, the American Company?

[fol. 894] A. It is not to my knowledge.

Q. Do you mean you know it is not when you say "to my knowledge"?

A. I do not know that it is. I have never seen any entries that would indicate we had any interest in it.

Q. Do you know how the glass was sold to that company—that is, sold by the Pittsburgh Plate Glass Company to the Duplate Company of Canada?

A. The same as to any other outsider.

Q. That is, sold direct from the Pittsburgh Plate Glass Company to Duplate of Canada as a jobber?

A. Yes, sir.

Q. Now, on your first page here which, as I understand it, encompasses the months of June, July, August and September of 1930, I see two items here with the words "Not shown," entered under the heading "Feetage," after the name "Duplate of Canada." Just what do you mean by that term "Not shown"?

A. The feetage was not known and the bill was not itemized.

Q. Wherever that phrase "Not shown" is specified then the bill was itemized? Is that correct?

A. In every other instance it was itemized.

Q. (Question read.)

A. Where the words "Not shown" are inserted the bill was not itemized, and in other instances where the total charge appears under the glass column the installation charge, edge work and freight was not segregated.

Q. Well, in such instances where the installation charge, edge work and freight was not itemized how do you know there was a charge for installation, freight and edge work?

A. The only way we could determine this would be to go through all the correspondence that was received by Mr. Judson who approved these bills. Before he would approve any bill for credit he would insist on itemization.

[fol. 895] Q. Well, you made up this exhibit, didn't you—Exhibit "X"?

A. I did.

Q. What did you make it up from?

A. From the credits issued to the warehouses and customers in these different places.

Q. And in particular instances you had a credit before you which simply showed that there was a credit given to a customer for so much feetage at so much. Now, how could you tell from that credit charge whether it included some installation, some freight or some edge work?

A. If it was not shown on the credit, the only way we could determine would be to go back to the correspondence, which in preparing this statement I did not think was necessary.

Q. But I say you could not tell from that credit charge whether there was installation included in it, freight included in it, or edge work included in it?

Mr. Smith: That was not what he said. He said you could not do it unless it was itemized.

Mr. O'Shea: That is what I am talking about.

Q. Such credit memorandum as were not itemized and which you had before you in making up those specific items in Exhibit "X." Where it was not itemized, showing an installation, a freight and edge work charge, then you could not tell in making up that Exhibit "X" whether there had been a credit for installation, freight or edge work, could you?

A. No, sir.

Q. Now, on this Duplate of Canada, the first item there appearing on this June, July, August and September, 1930, page, where it specifies that the credit memorandum was dated August 25th, you have put in under the column "Installation" $40.65. Are we to understand from that that the credit memorandum that you had before you stated that the entire credit was for installing some glass? [fol. 896] A. The memorandum would say for installing Duplate in a certain car, but in that charge for installation would probably be the cost of the glass, which would be shown in correspondence that was sent to Mr. Judson.

Q. You didn't look up the correspondence, did you?

A. I did not.

Q. So you don't know whether there was any cost of glass in that or not?

Mr. Christy: Mr. Master, I object to that as wasting time.

A. Not until it was looked up I wouldn't.

Q. Now, going over for the month of October, 1930, you show there that you gave a credit, which credit bill is dated September 10, 1930, issued to the Duplate Corporation of Canada for a credit of 110 feet of Duplate, presumably at a price of $180.49. Did I correctly read that item as appears on Exhibit "X"?

A. I did not get the date. It is October 10th.

Q. I should have said October 10th. Have you got it now?

A. Yes.

Q. Will you please point out to me in the account, any of the accounts that you filed here, where you sold 110 square feet to Duplate of Canada?

A. You want to know if any other sales were made to Duplate of Canada?

Q. I want to know where you have credited this plaintiff with 110 square feet of Duplate to any customer whose name is Duplate of Canada.

Mr. Smith: Do you mean credited in Exhibit "Z"?

Mr. O'Shea: I asked him to show me a credit to this plaintiff any place in this account of 110 feet of Duplate to any customer whose name is Duplate of Canada.

[fol. 897] A. I find no items listed on Exhibit "Z" as sale to Duplate of Canada. Sales might appear under the heading of sundry customers to the Duplate of Canada and not be listed separate, and it is quite true that Duplate of Canada may receive their Duplate from the Buffalo warehouse, in which case it would be billed from that warehouse.

Q. I don't think we are much interested here as to what might have been the fact, Mr. McHenry. The fact is that there is no customer called "Duplate of Canada" which is listed on Exhibit "Z" or Exhibit 9, showing the sale to that customer of 110 square feet. Isn't that so?

A. There is none in Exhibit "Z."

Q. Well, do you want to go through Exhibit 9?

A. That should be the same as Exhibit "Z".

Q. It ought to be the same. If you will turn to January, 1929, you will find there, will you not, an invoice to a customer named Duplate Safety Glass Co. of Canada for 3 feet 10 inches of plate glass at $9.58, making a rate per square foot of $2.50?

A. I have it. It is listed in Exhibit "Z".

Q. Where is it listed on Exhibit "Z"?

A. Same month, page 2.

Q. I find in the month of January, 1929, an item reading, "Duplate Safety Glass Co. of Canada, 3 feet 10 inches, $9.58." That is all right, isn't it, Mr. McHenry?

A. Yes, sir.

Q. And that, as I understand it, is the only item that you can find listed in Exhibit "Z" as having been sold to the Duplate Safety Glass Co. of Canada?

Mr. Smith: You mean by name, do you?

A. That is the only item set out that I can find.

Q. Now, you say that there is a possibility that this additional glass may have been sold to Duplate Safety Glass [fol. 898] Co. of Canada and is listed in Exhibit "Z", and presumably also in Exhibit 9, through some warehouse? Is that correct?

A. That is true.

Q. Now, if that be the fact, would the warehouse sell that glass at an additional price than what it paid to the Pittsburgh Plate Glass Company?

A. Yes, it would have to because it would have its freight and handling charges to take care of.

Q. Would it have any other additional price than that?

A. Well, they should figure on some profit; whether they did or not we don't know.

Q. Well, in any event, you gave no credit for any such profit in this account, did you?

A. We did not.

Mr. Christy: Defendants' counsel wishes to save an exception at this point. The defendants' proofs have been put in in answer to the proofs submitted by the plaintiff in chief. If plaintiff had wished to claim profits made by the warehouses of the Pittsburgh Plate Glass Company, such would have been a part of its case in chief, and it has offered no proofs on this subject. It should not now be permitted by improper cross-examination to lay a basis for an attempt in rebuttal to claim an additional profit not claimed in its original case.

Mr. O'Shea: Plaintiff's counsel simply states that he is cross-examining on proof that was submitted by the defense here—Exhibit "X", being a claim for credits.

Q. In this Exhibit "X" wherever the sale was made to a warehouse is it not a fact that the warehouse was specified?

[fol. 899] A. Well, Exhibit "X" does not cover sales to warehouses. It is charges from the warehouses to the home office for replacements.

Q. In Exhibit "X" wherever the credit was granted to a warehouse does not the exhibit specify the particular warehouse?

A. It does, but replacements were made by dealers whom the warehouse serves and the dealer would charge the warehouse; the warehouse in turn would charge the home office or Duplate Corporation.

Q. For example, taking up the month of November in Exhibit "X", the fourth item under November 4, I notice there an item, "Fisher Body Co." Does that mean that the credit was given direct to the Fisher Body Co.?

A. It does.

Q. And not to a warehouse?

A. Yes, sir.

Q. So that wherever we find on this exhibit an automobile manufacturer or a body builder listed as having received a credit, that credit did not go through a warehouse but was made direct to the named automobile manufacturer or body builder. Am I correct?

A. Yes, sir.

Q. Now, on the page encompassing the months of June, July, August and September, 1930, I call your attention to a credit given to the Pierce-Arrow Company under date of July 30th, presumably 1930. That is a listing of a specific credit given direct to the Pierce-Arrow Company, as I understand it?

A. That is true.

Q. And that entry or item on this list specifies that a credit was given for 954 feet and 5 inches of Duplate glass at a price of $3,340.61, and that in addition thereto an amount of $1,237.10 was included in the credit memorandum for installation. Am I correct in the statement of the item?

[fol. 900] A. Yes, sir.

Q. Now, will you please figure out what the rate per foot is of that credit? I am speaking now of the rate per foot of glass, not including the installation.

A. $3.50 per square foot. However, this credit being issued to Pierce-Arrow Company does not mean necessarily that Pierce-Arrow made the replacement. This replacement may have been made by a dealer in Pierce-Arrow cars for the Pierce-Arrow Company to which this dealer would add his profit onto the glass before he would bill the Pierce-Arrow Company for this replacement.

Q. You say he may have done that?

A. It is a practice that they do.

Q. Do you know whether it was done in this specific case or not?

A. I do not unless I would have an itemized list of the bill.

Q. Will you please take Exhibit "Z" or any other account that you filed in this proceeding, and show me any sale to the Pierce-Arrow Company, or anybody else, at a square foot ratage of $3.50?

Mr. Smith: That question is absurd.

Mr. O'Shea: I don't know of any objection in evidence that a question is absurd on cross-examination.

Mr. Smith: This witness has explained repeatedly that these items included these other items, and counsel is trying to give an impression there has been a sale at $3.50 a square foot, or attempting to prove that. It is ridiculous.

Mr. O'Shea: The witness hasn't said that. He said there may be some such things in some instances but he doesn't know.

The Witness: I said that is the practice at times.

[fol. 901] Mr. Smith: We object to the question as improperly incorporating evidence that the witness has not given or even intimated, to-wit, the sale at $3.50 a square foot.

The Master: I don't think he has intimated that.

Mr. O'Shea: He states right here that he gives a credit to the Pierce-Arrow Company for a sale of glass of 954 feet 5 inches, and that credit he claims to be $3,340.61, and he says that figures out to be $3.50 a square foot.

Mr. Smith: That was a credit, not a sale.

Mr. O'Shea: You can't give a man credit for something he hasn't sold.

By The Master:

Q. Can you give any answer in explanation of this, Mr. McHenry?

A. This item that you refer to is a credit to the Pierce-Arrow Company at $3.50 per square foot. It would cost the Pierce Arrow Company that much to have the glass replaced. This replacement was undoubtedly by a dealer. He may have purchased his glass at a price not exceeding $2.50 per square foot, but when he sells his glass, as he does in this replacement deal, naturally he is going to have his profit out of it, and charged it back to the Duplate Company through the Pierce-Arrow Company.

By Mr. Smith:

Q. What about his expenses?

A. His expenses are also included in his charges; freight on the glass when received, handling charge, installation cost; no doubt he has the edge work and cutting the glass to size and shape.

(Adjournment taken until Tuesday, November 29, 1932, at nine forty-five o'clock A. M.)

[fol. 902] Tuesday, November 29, 1932.

Met pursuant to adjournment.

Counsel present as before.

C. L. McHenry resumes the stand.

Cross-examination (continued).

By Mr. O'Shea:

Q. Mr. McHenry, in order to pick up where we left off last night, will you please state whether in any of the accounts filed here by you there appears a sale to the Pierce-Arrow Company at a square foot ratage of $3.50?

A. I don't believe there were any sales made to the Pierce-Arrow Company at $3.50.

Q. I call your attention to the original statement of account filed by the defendant company in this case, and particularly to the note appearing on the last page thereof, which reads as follows: "Pittsburgh Plate Glass Co. account for this item August, 1930 shows a loss of $4,461.00, covering period from start of Duplate Corporation to date." As I understand it, that note at the end of defend-

ant's original statement refers to commissions. Is that correct?

A. It is. That was the Pittsburgh Plate Glass Company's account on the general books.

Q. You have had then and still have, I assume, an account on the general books of Pittsburgh Plate Glass Company dealing with this commission?

A. We have; with the commission that they earned on the sales made direct from Pittsburgh office of Duplate.

Q. And what book does that account appear in?

[fol. 903] A. Well, it would appear in our general ledger.

Q. Will you please produce the general ledger containing that account?

A. I can bring the ledger sheets down, but to you, without an analysis of that account, they would mean nothing.

Q. Well, will you please bring the ledger sheets down?

A. I will.

Q. Mr. McHenry, have you an analysis of that account which appears on the general ledger of Pittsburgh Plate Glass Company?

A. We can make it up. It would probably take a day or day and a half.

Q. Just what do you mean by analysis? You mean a break down of the respective items that appear on there?

A. Yes, sir.

Q. I would prefer to have you just bring down the ledger sheets this afternoon, and then I can determine from that whether we need an analysis or not.

A. All right.

Q. About how many warehouses does the Pittsburgh Plate Glass Company maintain?

A. Seventy-one.

Q. Are those seventy-one located each in different cities?

A. Yes, sir.

Q. Is there a record available showing the sales of each of those warehouses?

A. We have the gross sales of each warehouse each month.

Q. Have you that record with you?

A. No, sir.

Q. Will you also bring that record this afternoon?

A. For what months do you want it?

Q. For the accounting period.

[fol. 904] Mr. Smith: I think there is a limit to how far we should be obliged to go in producing these books.

The Master: Maybe Mr. O'Shea is willing to pick out certain parts of that.

Mr. O'Shea: I am willing to make any agreement, but Mr. McHenry has testified to certain sales. It seems to me I am entitled on cross-examination to get a break up of what it is, to investigate it. I don't know of any limit, either in rules of court or the decisions of court, on my right to cross-examine or to investigate these books. I think the decree itself speaks for itself as to the broad investigation I am entitled to.

(Discussion off the record.)

Q. Have you also a record showing the sales of Duplate in those respective warehouses?

A. I think there is.

Q. In summary form for a year?

A. Yes.

Q. Will you also produce that this afternoon?

A. Yes.

Q. Or even the information that you can get from your records on which you can testify in the record what it is. Is there some general record also, Mr. McHenry, as to the expenses of the respective warehouses of Pittsburgh Plate Glass Company?

A. We have that in summary form.

Q. Will you please bring that down this afternoon also?

A. Yes.

Q. Can you state, Mr. McHenry, what products these respective warehouses sell?

A. Paint, glass lacquers, brushes, putty, frame mirrors, various other building and glazing materials.

[fol. 905] Q. Can you give a little bit better definition of what you mean by "various other building and glazing materials"? Or perhaps you said billing glazing materials.

A. Building and glazing. In that would be putty, easy-set store front construction, brads that are used in putting in glass. Linseed oil, of course, would be included in the paints. That is about all I can recall at this time, although there are hundreds of other items.

Q. Mr. McHenry, Defendants' Master's Exhibit "U" which you have before you—was that made up from the

specific records of the Pittsburgh Plate Glass Company?

A. We used the requisitions of the Pittsburgh Plate Glass Company to find out what glass was delivered on these orders that are tabulated on this exhibit.

Q. And also to find out what glass was actually used in making up the order?

A. Yes, that would follow the same order.

Q. Well, are all of those items on there taken from actual records that you have, or are some of them estimated to some extent or other?

A. Mr. Datz made up this exhibit and I understood from him that he had checked the receiving slips of the Pittsburgh Plate Glass Company to arrive at the quantity and size furnished on each order as shown on the exhibit.

Q. Am I to understand from that last question that you do not know whether in making up Exhibit "U" estimates were used, or whether actual records were used in every instance?

A. I am safe in saying that no estimates were used.

Q. Will you look at General Order No. 2057. I think it is the third line on Exhibit "U," and shows plates in the amount of 5940.

[fol. 906] A. I have it.

Q. Are you familiar with Mr. Datz's handwriting enough to determine whether that is his handwriting?

A. It is.

Q. Can you tell from looking at the document which I have handed you whether that is the calculation of Mr. Datz on which he based his figures contained in Exhibit "U"?

Mr. Smith: If the Master please, if this is going to be an examination of a schedule which has been prepared by Mr. Datz and not by the witness, we object to the cross-examination of this witness, and ask that that be addressed to Mr. Datz who prepared it and not to a man who will testify by hearsay.

The Master: Objection sustained.

Mr. O'Shea: This exhibit was put in by Mr. McHenry.

Mr. Christy: We will produce Mr. Datz.

(Mr. McHenry's cross examination is hereupon interrupted and Mr. Datz takes the stand to testify with respect to Defendant's Master's Exhibit "U.")

PHILIP F. DATZ, recalled.

Cross-examination.

By Mr. O'Shea:

Q. Now, Mr. Datz, I understand you prepared the detail of Defendant's Master's Exhibit "U." Is that correct?

A. That is correct.

Q. Will you please state whether all of the items on Defendant's Master's Exhibit "U" are taken from actual records of Pittsburgh Plate Glass Company?

[fol. 907] A. Practically all of the items as shown on Exhibit "U" are taken from the actual delivery slips at Works No. 1 of the Pittsburgh Plate Glass Company, to the Duplate Corporation.

Q. When you say "practically" you mean that some of those which appear on Defendant's Master's Exhibit "U" are not taken from the actual delivery slips?

A. That is correct, as the delivery slips were not available at the time this record was made.

Q. There are some items then on Defendant's Master's Exhibit "U" for which you had no delivery slips, and therefore you used some system of estimating what was used or delivered. Is that correct?

A. That is correct.

Q. That particularly is true of General Order No. 2057 and General Order 2311, is it not?

A. That is correct.

Q. Do you know or are you able to determine from any records that you have here as to whether the same thing is true with respect to any other item appearing on Defendant's Master's Exhibit "U"?

A. Not without referring to the individual items as shown on the exhibit.

Q. You mean by that to the records from which you worked in order to get the individual items as shown on the exhibit?

A. That is correct.

Q. Will you please state, Mr. Datz, just how many plates in General Order 2057 you did not have requisition slips for, and how you made your estimate with respect to those items or those parts of a particular item that appears on

Defendant's Master's Exhibit "U" in determining the amount of glass used?

A. The order G. O. 2057 specifies 3000 Duplate, necessitating 6000 polished plate sheets of glass. We were able [fol. 908] to locate through the delivery slips and account for 3006 plates of polished plate glass.

Q. Out of a total of what?

A. 6000 plates. We have taken the difference between 6000 plates in this particular instance, which is 2934 plates, and added same to the deliveries by the Pittsburgh Plate Glass Company as shown on the delivery slips which we were able to locate.

Q. Now, as I understand it, Mr. Datz, this General Order 2057 calls for single polished plate glass in the amount of 5940 plates. Is that correct?

A. No, sir. It calls for 6000 single polished plates.

Q. And you were able to find delivery slips showing a delivery to Duplate of 3006 single polished plates of glass?

A. That is correct.

Q. And you were unable to find 2934 single polished plates of glass?

A. We were unable to locate the delivery slips from the Pittsburgh Plate Glass Company to Duplate covering the 2934 polished plate glass furnished for this particular order.

Q. Then, in computing the cutting loss for these 2934 plates, what did you do?

A. We multiplied the 2934 polished plates by the loss derived from the original size of the polished plate glass purchased from the Pittsburgh Plate Glass Company in bracket and the size billed to the customer in bracket, amounting to .4445, giving a total of 1304 feet loss.

Q. Am I correct then in my understanding that in making that estimate you assumed that the same bracket was used in the 2934 plates for which you were unable to find delivery slips as was used in the 3006 plates for which you were able to find delivery slips?

[fol. 909] A. The pattern furnished on this particular order, which was a back light for one of the Fisher Body cars, necessitated the same size as furnished and shown on the delivery slips covering the 3006 plates delivered.

Q. And for that reason you did assume that the same bracket was used in the 2934 as was used in the 3006?

A. We assumed it knowing that it would have to be that particular bracket.

Q. However, in some items on Defendant's Exhibit "U" for a particular order different brackets were used to make up that particular order, were they not?

A. Yes, sir.

Q. Notably on No. E-274, calling for 11,500 plates of Duplate, for which, according to Defendant's Exhibit "U," you put in Defendant's Exhibit "U" under the heading "Actual Size Polished Plate taken from Stock" the following brackets, to-wit, 16½ by 26; 17 by 26; 18 by 26, and 18 by 28. Is that correct?

A. That is correct.

Q. And under the heading, "Bracket Size Polished Plate Billed to Duplate," you used the following brackets: 18 by 26; 18 by 26; 18 by 26, and 18 by 28. Is that correct?

A. That is correct.

By Mr. Smith:

Q. Mr. Datz, you have been interrogated concerning two orders on Exhibit "U," to-wit, General Order 2057 and General Order 2311. Is it not the fact that those are the only two orders on that exhibit which contain estimates?

A. Without referring to each individual order as shown on this exhibit, I am unable to state.

Q. Will you please examine your records and prepare yourself to answer that question?

[fol. 910] A. I will do that.

Q. And if there be any others that contain estimates, prepare yourself to indicate them to the Master.

A. I will do so.

C. L. McHenry, resumes the stand.

Cross-examination (continued):

Mr. O'Shea: Plaintiff wishes to interpose an objection to Defendant's Master's Exhibit "DD" on the ground that it is incompetent, irrelevant and immaterial.

The Master: We will accept it for the present and decide later as to its materiality.

By Mr. O'Shea:

Q. Mr. McHenry, have you got before you Defendant's Master's Exhibit "II"?

A. I have.

Q. Am I correct in my understanding that this Exhibit "II" constitutes your idea of the respective individual items and the total of those individual items which you believe were excluded from Plaintiff's Exhibits 9 and 9-A?

A. It is. They were taken from that exhibit.

Q. And similarly, under the caption in Defendant's Exhibit "II," "Company's Estimated Cost of Rejects charged to Process, Cost Later Deducted," am I correct in my understanding that it is your thought that Plaintiff's Exhibits 9 and 9-A eliminate or deduct the amount given under that heading, to wit, $60,334.61?

A. I took it to mean that because it appeared in Exhibit 9-A among the losses.

Q. Will you please point out in Exhibit 9-A where you took that figure from?

A. It is on the last page of the exhibit.

[fol. 911] Mr. Christy: The copies of Exhibits 9 and 9-A from which the witness says that he prepared Defendant's Exhibit "II" included also Plaintiff's Exhibit No. 10, the sheets constituting No. 10 having been pasted into my copy of Exhibit 9-A for my convenience by the defendants' witness Sharpe. The offer of Exhibit No. 10 will be found at page 134 of the manuscript record.

Mr. Smith: Now may we have it noted on the record that the heading of Exhibit "II," where in the parenthesis at the end is recited "Plaintiff's Exhibits 9 and 9-A," may be amended to read, "Plaintiff's Exhibits 9, 9-A and 10?

The Master: It may.

Mr. Christy: Obviously, in the last answer the witness should have referred to the second sheet of Exhibit No. 10.

Q. Do you adopt counsel's statement, Mr. McHenry?

A. I do.

Q. Now, please turn to Plaintiff's Exhibit 10, and point out the figure amounting to $60,334.61.

A. This is on the second column from the right.

Q. And that appears under a heading, "Company's Estimated Cost of Rejects Charged to Process, Cost Later Deducted (see Contra)," does it not?

A. It does.

Q. Did you look to see what the expression in parenthesis, "See Contra," means?

A. I could not locate where this was added back.

Q. In the monthly statements, which are marked in evidence here as Plaintiff's Exhibit 9, there appears in each a statement entitled, "Detail of Contested items eliminated from cost of Duplate sales," does there not?

[fol. 912] A. There is.

Q. Now, will you please turn to the monthly statement for April, 1929, included in Plaintiff's Exhibit 9?

A. I have it.

Q. Do you not find there the figure $60,334.61, which is the corresponding figure to the $60,334.61 which appears on Plaintiff's Exhibit 10?

A. I find it.

Q. Immediately beneath that in the monthly statement for April, 1929, which is a part of Plaintiff's Exhibit 9, is there not an off-setting item in the amount of $59,645.69?

A. There is.

Q. Is it not true that the effect of those two items is that Exhibits 9 and 9-A eliminate from cost of Duplate sales only the difference between the figure $60,334.61 and $59,645.69, or $688.92?

A. That is correct.

Q. So that Defendant's Master's Exhibit "II" then is incorrect in its statement that Plaintiff's Exhibits 9, 9-A and 10 eliminate from Duplate's cost of sales the amount of $60,334.61, is it not?

A. That would be correct in the whole. However, in preparing my exhibit I used the exhibit as filed by Mr. Sharpe, which is Exhibit 10.

Q. In other words, what you mean to say now is that you took from Exhbit 10 the figure of $60,334.61, which appears on Defendant's Master's Exhibit "II," and did not trace the contra entry which is indicated on Exhibit 10? Is that correct?

A. That is correct. In preparing my Exhibit "II" I accepted or used the figures as stated by Mr. Sharpe in the preparation of his Exhibit 10.

Q. But the fact is that in the account as shown in Exhibits 9, 9-A and 10 and all the other exhibits there has not been eliminated the sum of $60,334.61?

[fol. 913] A. That is correct. If I had been preparing Exhibit 10 originally, I would not have put in the $60,334.61.

Q. Now, I call your attention also, Mr. McHenry, to the item appearing on Defendant's Master's Exhibit "II" under the sub-heading, "Salvaged or Reclaimed Stock taken into Possession," and amounting in total for the accounting period to $151,435.65, and I ask you where you find in Plaintiff's Exhibits 9, 9-A and 10 the statement that those exhibits eliminate from Duplate's costs $151,435.65 as salvaged or reclaimed stock taken into possession?

A. This amount appears on the third column from the right of Exhibit 10.

Q. And that is entitled on Exhibit 10 as follows: "Adjustments Resulting from Revaluations of Opening and Closing Inventories Based on Adjusted Cost." Is that right?

A. It is.

Q. So that that item does not have to do with a salvaging process, does it?

A. It does not. It looks to me now as a typographical error, as if the stenographer started with the fourth column, which is "Salvaged or Reclaimed Stock, value per Company, included in Costs," which amounts to $162,235.83, and took the amounts appearing under the next column which totals $151,435.65. This item of $162,235.83 does not seem to appear on Schedule "II." Apparently that is what has happened, as I do not locate the item of $162,235.83 which should have been under the heading that is placed here of "Salvaged or Reclaimed Stock Taken into Possession." That total should be $162,235.83, and another column should be included for "Adjustments Resulting from Revaluations of Opening and Closing Inventories Based on Adjusted Cost" of $151,435.65. In typing Schedule "II" the steno-

[fol. 914] rapher has erred, and in checking it back it was not caught.

Mr. Smith: We will ask permission to substitute the proper schedule.

Mr. O'Shea: You can't substitute an exhibit that is already in. You can correct it. If there are any corrections

that are necessary, I think the defense has full liberty to make such corrections as they may see fit.

Q. Now, Mr. McHenry, as I understand your explanation, it is that the heading, "Salvaged or Reclaimed Stock taken into Possession," appearing over the total figure of $151,435.65, is incorrect and should read in some other language. Is that right?

A. It is true. The amount of $151,435.65 as shown should be $162,235.83. That would make the salvaged or reclaimed stock taken into possession correct. Then there should be added to Exhibit "II," which was missed in typing, another column for adjustments resulting from revaluations of opening and closing inventories based on adjusted cost, the total of which is $151,435.65.

Q. Now, referring to the item which you now call "Adjustments Resulting from Revaluations of Opening and Closing Inventories Based on Adjusted Cost," and amounting to $151,435.65, have you traced through the accounts as shown in Plaintiff's Exhibits 9 and 9-A to determine whether or not there were any offsetting charges against that item?

A. I have not. I have accepted this statement, Schedule 10, as filed by Mr. Sharpe. The heading of this statement is "Recapitulation of Contested Items Eliminated from Cost of Duplate Sales, Stated in Dollars."

Q. Well, will you look at Exhibit 9, and tell us whether there appears in that Exhibit 9 offsetting items against this [fol. 915] adjustment resulting from revaluation of opening and closing inventories, amounting to $151,435.65? In order to help you, Mr. McHenry, I suggest you turn to February, 1929, July, 1929, August, 1929, January, 1930, and March, 1930.

A. These statements were prepared by your accountant and I don't think it is up to me to trace these items and explain, as this accounting is so complicated it would take some time to follow them through and see whether they were actually taken out or not.

Mr. Smith: We object to the cross-examination of the witness in attempting to trace out Mr. Sharpe's figures, some of which it has already appeared are erroneous, and suggest it is improper to attempt to correct their own accounting by cross-examining the defendant's witness.

Mr. O'Shea: Now, Mr. Master, I think it is wholly improper that it be put in an objection that the figures of what counsel calls Sharpe's are incorrect. I don't know of any showing that any figures that Mr. Sharpe has put in are incorrect. However, passing that for the moment, what I am doing here is this: Mr. McHenry has offered in this case Defendant's Master's Exhibit "II," which he specifically designates as being figures taken from Exhibits 9, 9-A and 10. Now I am cross-examining him on that to show that Mr. McHenry has failed to properly show the effect of Exhibits 9, 9-A and 10. That seems to me to be perfectly proper cross-examination. It is his testimony; this exhibit is his testimony, and I am simply cross-examining him on it.

(Discussion off the record.)

The Master: In answer to Mr. Smith's objection, I sustain it.

(Exception noted to plaintiff.)

[fol. 916] Q. Now, Mr. McHenry, still referring to Defendant's Master's Exhibit "II," will you please state where you find in any of the Exhibits 9, 9-A and 10 the figure appearing upon Defendant's Master's Exhibits "II" under the heading, "General Expense," and amounting in total to $12643.47?

A. These amounts were taken from Exhibit 9. You will notice in the income account for December, 1928, the amount, "Proportion of General Expense Representing Deduction of Cost of Duplate Sales," $69.83, which is set in the contested items of cost and expense.

Q. Now, in that same month of December, 1928, over on the page entitled "Detail of Contested Items Eliminated from the Cost of Duplate Sales," Exhibit 9 puts that $69.83 back into cost, doesn't it?

A. This sheet shows the items eliminated, a total of $100,418.46 less a total of $45,992.21. In that total last mentioned is the item $69.83, but in computing the cost on the income account the item of $69.83 is not used as an item of cost.

Q. Without checking up the figures, Mr. McHenry, can you state the source from which you took the item appearing on Defendant's Master's Exhibit "II" under the sub-

heading, "Triplex Suit and Legal Expense," amounting to $20,351.45?

A. This I took from the Duplate records, and it corresponds with the amount shown by Sharpe.

Q. I assume that you mean when you say "as shown by Sharpe" either Exhibits 9, 9-A or 10?

A. It is shown in Exhibit 9 or 9-A. These items are all shown in Sharpe's Exhibit 9.

Q. Again, Mr. McHenry, without computing the figures, will you please state from what source you took the figure appearing on Defendant's Master's Exhibit "II" under the sub-heading, "Credit for Returns not Allowed," and amounting to $722,717.38?

[fol. 917] A. The total returns as shown in Exhibit 9-A, page 6, is $820,646.06. From this we took the allowance for returns as shown on page 15 of the same exhibit under Column "C" of $181,490.10, leaving a balance of $639,155.96. To this we added the returns received since May, 1930, as shown in Exhibit "W" of $83,561.42, making a total of $722,717.38, as shown on Exhibit "II."

Q. Then, as I understand it, this item on Exhibit "II" under the sub-heading "Credit for Returns Not Allowed" does not appear in its entirety in Plaintiff's Exhibits 9, 9-A or 10?

A. It does not. To the amounts shown on Exhibit 9 we have added the amount shown in Exhibit "W", being the returns received since May, 1930. Exhibit "W" covers returns manufactured with gelatine during the infringing period.

Q. Mr. McHenry, on page 6 of Exhibit 9-A the figure which you have used in order to arrive at $722,717.38, as appears on Defendant's Master's Exhibit "II", and being $820,646.06, is not the amount of the returns used by Sharpe in computing 9-A, is it?

A. That is the total returns, and Mr. Sharpe only gave us credit for $181,409.10.

Q. Well, doesn't it appear on page 6 that the figure $820,646.06 is stated to be the returns as per the account filed by the Duplate Corporation?

A. It is.

Q. And the next item on that page states that as per the monthly income accounts, by which [redacted] meant the Exhibit 9,

the return sales taken into consideration by Sharpe in 9 and 9-A amount to $812,707.93?

A. That is correct.

Q. Now, Mr. McHenry, on Defendant's Master's Exhibit "II" there is one other item I am unable to check, and that is the item appearing on there under the sub-heading "Ex-
[fol. 918] perimental Expense", and amounting to $139,-729.30. Am I to understand that you took that figure under that sub-heading, "Experimental Expense", from either Exhibit 9 or 9-A?

A. I took it from Exhibit 9.

Q. Have you got an itemization of the items that you took off Exhibit 9?

A. I have by months.

Q. Will you let me see that for the purpose of checking?

A. Yes, sir. (Paper handed to counsel for plaintiff.)

(Recess taken until 1.45 o'clock P. M.)

[fol. 919] Afternoon Session

L. C. McHenry resumes the stand.

Cross-examination (continued).

By Mr. O'Shea:

Q. Mr. McHenry, you have you work sheet on that experimental expense showing where you obtained the $139,-729.30 as appears on Defendant's Exhibit "II"?

A. Yes, sir.

Q. Do those totals by the year amount to as follows on your work sheet: $49,973.69 for 1928; $48,447.16 for 1929, and $40,826.45 for the first five months of 1930?

A. They are the amounts shown. I notice that the amount used on the exhibit does not tie in with the first five months of 1930. They must have made a correction that is not noted on the work sheet.

Q. Have you any records here from which you can find out what that correction might have been?

A. I cannot locate any amount of $482, which is the difference between my work sheet and the amount shown on Schedule "II", at this time.

Q. Referring to Exhibit "W", which I understand is an itemization of defective glass which was returned by some of the customers to the Pittsburgh Plate Glass Company at Pittsburgh, are you able to state as to whether or not there was any salvage value in that glass, assuming that my understanding of the exhibit is correct?

A. Mr. Datz testified as to the salvage value in this glass that was returned after our accounting closed, and I am not familiar with the details of it.

Q. The Pittsburgh Plate Glass Company sold certain glass to its warehouses, which is generally referred to in the trade as block sizes, did they not?

[fol. 920] A. They did.

Q. Are you sufficiently familiar with the manufacturing process to enable you to state whether there would be any glass cutting loss in the manufacture of those block sizes?

A. I am not sufficiently familiar with that specific item.

Q. You don't know the manner in which they made up the so-called block sizes?

A. I know the manner in which they made them up, but I am not versed on the loss they might suffer in cutting.

Q. Do you know whether the books show that there was any glass cutting loss in making up those block sizes?

A. Which books do you refer to—the books at the warehouse after the glass was laminated or before the glass was laminated.

Q. Well, let us take it before the glass was laminated.

A. It would be impossible for me to say whether there was any loss in cutting before it was laminated.

Q. Have you the warehouse records with you this afternoon, Mr. McHenry?

A. I have as to sales and expense for the years 1928, 1929 and 1930.

Q. Can you state from those records what the total sales of the warehouses were for the year 1928?

Mr. Smith: Total sales of what?

Mr. O'Shea: Total sales of all merchandise.

A. Total sales for year 1928, $50,015,982.52; that includes polished plate, other glass, paint, and all other items sold by the warehouse.

Q. And can you now state from those records what the total expenses were of the warehouses in the year 1928?

[fol. 921] A. Total warehouse expense for 1928 was $8,191,352.08.

Q. That total sales, amounting to $50,015,982.52, includes the Duplate as well as all other products?

A. It does.

Q. Now, will you give me the total sales of the warehouses for the year 1929?

A. Total warehouse sales is $36,919,882.31.

Q. Can you give me now the total expenses for the warehouses in the year 1929?

A. $8,237,579.80. These sales do not include factory sales, and the expenses do not include the proportion of warehouse expense apportioned to factory sales.

Q. Does that last answer apply to 1928 as well as 1929?

A. Yes, sir.

Q. I don't quite understand why factory sales should be included in warehouse sales. Can you help me understand that?

A. A factory sale is a sale made by the warehouse that is shipped direct from the factory to the consumer, does not go through the warehouse stockroom at all.

Q. Have you got the factory sales, as you have just now defined that term, for the year 1928?

A. For the year 1928 the factory sales were $5,369,631.68.

Q. Now, as I understand it, your method of accounting apportions some other type of expense other than the expense which you have testified to in 1928 as being $8,191,352.08?

A. In the year 1928, $8,191,352.08 was the total expense which would be applied to both warehouse and factory sales.

Q. Does your record indicate how much were the actual warehouse expenses in the year 1928?

[fol. 922] A. None other than the figure I have given you.

Q. Which includes a proportion of some expense other than the actual expense of the warehouses for that year?

A. It includes the expense in handling the sales that go directly from the factory to the customer.

Q. And your record does not show how much you charged for that expense of handling?

A. It does not.

Q. Will you give me the factory sales for the year 1929?

A. $16,149,037.40.

Q. That, as I understand it, is in addition to the $36,919,882.31 which you testified to before?

A. It is.

Q. Is there any segregation on your records for the year 1929 of the warehouse expenses as given by you in the amount of $8,237,579.70?

A. We have additional expense that has been applied to factory sales of $160,923.53.

Q. As I understand it, that $160,923.53 is what your books apportioned for the handling by the warehouses of the sales amounting to $16,149,037.40?

A. That is correct.

Q. Now, I assume you have only got your record there for 1930 in the total year's amount?

A. I can give it to you for the first five months.

Q. Let us have the same figures for the first five months.

Mr. Smith: Is this factory sales or warehouse sales?

Mr. O'Shea: Total sales for the first five months and after that the factory sales, if you wish to give it that way.

A. The warehouse sales are $14,224,410.32; the factory sales are $4,717,942.75.

[fol. 923] Q. Now the expenses if you have them.

A. The expenses for the first five months: warehouse are $3,430,190.11; expense on factory sales, $41,755.16. Now, you must not lose sight that this is only the warehouse expense. There is also a portion of general office expense that is applicable to warehouse sales.

Q. Well, does that last statement apply to the previous years as well as 1930?

A. It applies to all years.

Q. Mr. McHenry, do your general books show whether the warehouses, operating as a separate entity, made a profit in the year 1928?

A. They do.

Q. Are you able to testify as to how much that profit was in the year 1928, or loss?

A. Not at the present time.

Q. That is true of the other years too?

A. Yes.

Q. Are you able to testify generally as to whether they did make a profit or a loss?

A. I can give you the cost of sales and you can deduct it from your sales. That will give it to you with the exception of the general office expense.

Q. You mean you can give it to us now from the records you have got here?

A. Yes, sir.

Q. But you couldn't answer my question offhand as to whether it was or not?

A. No.

Q. If we had the cost of sales, you still would have to give us the general office expense to determine whether there was a profit or loss?

A. Yes, sir.

Q. Mr. McHenry, you have produced the Pittsburgh Plate Glass Company's ledger sheets showing the account which is referred to in the note at the end of defendant's original [fol. 924] statement of account, have you?

A. I have.

Q. Those consist, as I understand it, of really two accounts—one entitled "An Earnings Account," and the other entitled "An Expense Account." Have I correctly stated what they consist of?

A. That is correct.

Q. Now, just what sort of charges went into that part of the account which is entitled "Earnings Account"?

A. The sales and cost of sales.

Q. Am I correct in my understanding of that that your method of keeping that account was that you credited that account with the glass sold by Pittsburgh Plate Glass Company and debited the account with the sale of such glass less the commissions? Now, maybe I have used the words "Credited" and "Debited" wrong. If I have, correct me—if that is the only wrong thing I have said.

A. Well, this account is practically a commission account. It is offset by the difference between the sales price and the charge to it of cost of sales on the sales made by the Pittsburgh office.

Q. It is only the Pittsburgh office?

A. Yes.

Q. Well, of course, the sales made by the Pittsburgh office to the warehouses would be in there too, would it not?

A. It may include the gross. I would have to check that with the total sales, but the difference between the debit

and credit would be the commission that the Pittsburgh office earned only.

Q. That is my understanding of the account. Now, the other part of that account, which we referred to as the expense account, had certain expenses which Pittsburgh Plate Glass Company deemed should be offset against the net [fol. 925] amount in the earnings account. Is that a correct statement?

A. That is correct.

Q. Now what were the general type, if you can give us a general definition, of the kind or character of expenses that went into that expense account?

A. Well, in this account would be represented office rent, office supplies, and traveling expense; also salaries of the traveling salesmen. However, in the first year or first year and a half the salesmen's salaries are not charged to this account, which in preparing my exhibit——

Q. What exhibit?

A. The first one.

Q. That is called in the record the defendant's original statement of account?

A. In preparing my original statement of accounts it was necessary for me to include as an expense these items that did not appear in the expense account of the Duplate Corporation. Also, there is a portion of general office expense that is not charged on these ledger sheets that we have here.

Q. Well, is that portion of general office expense included in defendant's original statement of account?

A. It is.

Q. You have now given us sort of a general explanation of the character of items that went into the expense account as shown on your general ledger?

A. I have.

Q. Now the earnings account for the year 1928. Does that show a profit?

A. It does.

Q. In what amount?

A. In the amount of $45,699.40. This represents commissions earned.

Q. Now, against that, of course, would be the total of the charges for the year 1928, as set forth in the account that [fol. 926] we have been calling here the expense account?

A. That is correct, with the addition of the general office charges that were not posted to this account.

Q. Will you please give us the expenses set up in the expense account for the year 1928?

A. $17,883.86.

Q. Which would leave a profit, as I understand it, to the Pittsburgh Plate Glass Company, at that point in the statement of account in any event, of $27,515.61. Is that correct?

A. It would without considering the general office ex-expense and charges for salesmen that were originally not charged to this account.

Q. Then, from that it is your thought that there should be deducted these general office expenses and salesmen's expenses, and what else?

A. That is all.

Q. The salesmen you have in mind were working on what sales?

A. On Duplate sales alone, out of Pittsburgh office.

Q. On Duplate sales only out of Pittsburgh office?

A. Yes, sir.

Q. Can you explain just why in the year 1928 the salaries of the salesmen working out of the general office were not charged into that general expense, if you know?

A. It would be my idea that it was just overlooked, because some of these men were working at desks in the office of Pittsburgh Plate Glass Company on Duplate sales alone; other men were on the road, and their salaries were not segregated until a later date.

Q. Perhaps this will shorten this up, Mr. McHenry. Can you state from the records which you have how you arrived at the loss of $4461 to which you have referred in a note at the end of defendant's original statement of account?

[fol. 927] A. I took all the earnings as shown by the Duplate earnings account, all the expenses as shown by the general expense Duplate account; to which expense I added the salaries and the general office expense that should have been applied to Duplate sales, to arrive at my figure. In making this analysis I recall that it took me several days to get the matter straightened out because I had to analyze the payrolls to see what the men were doing in the sales department in order to apply their expense to the Duplate sales account.

Q. Do I understand from that last answer that you made some sort of apportionment on some salaries?

A. No. I took the men that were working direct on Duplate sales and added the expense of their salaries to the account in arriving at my four thousand dollar loss.

Q. $4461?

A. Yes.

Q. Well, am I to understand from what you have just said now that the expenses, including general office and these direct salaries, only exceeded the commissions by the sum of $4461?

A. During the period of two years and a half—two years and five months.

Q. Your note here says that was true up until August, 1930.

A. Well, if it says to August, 1930——

Q. Does that note refresh your recollection that the figures that you took into account in arriving at that figure given in the note ran up until August 1st or July 31st or August 31st—which?

A. It was taken up to August, 1930, as shown on the note.

Q. Would that mean August 1st or August 31st?

A. I do not recall at this time.

Q. Let us call it August 1st or July 31st. So that in making up that account you took into consideration two [fol. 928] years and seven months—at least two years and seven months?

A. Yes.

Redirect examination.

By Mr. Christy:

Q. Referring to this last matter, Mr. McHenry, of the note at the end of the original statement, which reads as follows: "Pittsburgh Plate Glass Company account for this item (commissions) August, 1930, shows a loss of $4461, covering period from start of Duplate Corporation to date." Will you please look at Defendants' Exhibit "BB"?

A. I have it here.

Q. This Exhibit "BB" shows a loss in selling expense to the Pittsburgh Plate Glass Company of over $318,000.

Can you reconcile these two statements, or explain what this difference is and how it arose?

A. In preparing the original statement I included the accounting up to August to show that at that time the commissions of the Pittsburgh Plate Glass Company showed a loss, which was apparently August 1, 1930. In preparing Exhibit "BB"——

Q. Well, just stop there. You mean that the commissions of which you gave the total in your original statement showed that loss in August, 1930, at that time?

A. Yes. That was the commissions earned by general office only.

Q. Now proceed.

A. In preparing the Exhibit "BB" I took in the commissions earned both by the general office and the warehouses, and charged to that the proportion of the expense of the warehouses and the actual expense of the general office, making the loss $318,430.70, but the commissions shown on Exhibit "BB" are only taken up to the end of May, 1930.

[fol. 929] Q. We will drop that matter of two months. I don't care about that. What I want to do is that you shall make the Master clearly understand what you were dealing with at the time you made this note on your original statement, and what you were dealing with at the time you made that Exhibit "BB."

A. As I stated before, the note on the original statement dealt only with commissions earned by the general office on sales direct to automobile builders or body builders, and in Exhibit "BB" all the commissions earned, both by warehouses and general office, are shown.

Q. And you have also shown on Exhibit "BB" the actual expenses as computed by you in the manner stated in your former testimony. Is that right?

A. Yes, sir.

Q. You were interrogated yesterday in the matter of these replacements made after the end of the accounting period of Duplate manufactured and sold during the accounting period, as to certain replacements charged or credited (I don't know which is the correct term) to a Canadian company. Have you looked up the details of these items?

A. I have presented statements showing these credits.

Q. Now take those statements—I don't want to offer them in evidence if they are not necessary, but tell us where the Canadian company got the glass which they used for replacement, and check them with the corresponding figures in Defendants' Exhibit "X."

Mr. O'Shea: May I ask is this testimony referring to that Duplate of Canada?

Mr. Christy: Yes.

Q. (Continued.) In other words, explain generally the nature of these replacements.

[fol. 930] A. These credits do not show where the Duplate of Canada purchased their glass, but a notation on the invoice against the Pittsburgh Plate Glass Company for the glass replaced reads as follows: "To debit you with the amount of defective American Duplate returned and charged to us by Studebaker Corporation as follows:" Under which is listed the serial number of the car, the reason for the replacement; and the total charge. From this it would indicate that the Studebaker Company made the replacements, charging them to the Duplate Company of Canada, who in turn charged them back to the Duplate Company in America.

Q. Do these papers which you have indicate why this procedure should have been followed?

A. In a letter from Duplate Safety Glass Company of Canada, dated May 10, 1930, it states as follows: "Replying to your letter of May 5th with further reference to the eleven lights of defective Duplate which we have taken in from General Motors of Oshawa, General Motors have agreed to a credit of $1.75 per square foot for this glass. We will, therefore, give them this credit immediately and in return get credit from you."

Q. That is referring to another instance of replacement, is it?

A. It is.

Q. Now, isn't there something in that correspondence as to this second instance where it appears that Duplate Corporation, defendant here, asked this Duplate Company of Canada to pass on these alleged defectives and to replace them if, in its judgment, they should be replaced?

A. In a letter of May 2, 1930, from the Duplate Safety Glass Company of Canada to Pittsburgh they state that

they have inspected these eleven lights and find that they all show bad separation, in most cases one inch or more [fol. 931] in depth, and the rejection is quite justified in their opinion. This letter is answered on May 5th by the sales department of the Pittsburgh Plate Glass Company and the Duplate, in which they state that "We will be only too glad to credit you with these eleven lights which you have taken in and would appreciate having you advise the basis on which credit is to be given."

Q. That would indicate a replacement actually made in Canada, wouldn't it?

A. It would, yes.

Q. Now, will you identify the particular items on Exhibit "X" to which these documents which you have before you refer?

A. In the month of December, 1930, on page 2 of Exhibit "X," there appears the amount of $157.32, of which $143.80 is for glass, $7.52 freight, and $6.00 for boxing. Now, in that charge for glass of $143.80, which makes an average price of $4.56 per square foot, there apparently is included the cost of installation. As you will notice from these bills, installation cost isn't set out.

Q. That is, the bills in the documents you have before you?

A. Yes, sir. On the same page for the same month in Exhibit "X" there is also an item for the Duplate of Canada for 12 feet 8 inches, total charges $55.96; the average there being $4 per square foot for glass. That item, too, no doubt, has installation cost included in the price of the glass.

Q. And the documents which you have in your hand pertain to both of these December items, do they?

A. They do.

Q. Now, the other set of documents. Have they to do with the May-September, 1930, charges on Exhibit "X"? [fol. 932] A. Apparently they do. There is so much correspondence here the items do not check exactly, as the one item for Duplate of Canada, which is listed as September 16th, credit is given for $81.96 on Exhibit "X." The papers here indicate $80.89, which is for 46.2222 at $1.75. No doubt in the correspondence an explanation would be set forth showing why this amount was increased

from $80.89 to $81.96. That is the only invoice that is attached to this correspondence.

Q. For that period?

A. Yes, sir.

Q. There are a few original letters from this Canadian Duplate Company, which are signed "Duplate Safety Glass Co. of Canada, Limited," and there is also a legend printed on the sheet, "Manufacturers of Duplate Non-Shatterable Glass." Mr. O'Shea asked you yesterday if there was any connection between that Canadian company and the defendant here, and you said you did not know of any. With these letters before you, do you know of any now?

A. I do not.

Mr. Christy: The documents to which the witness has testified are handed to Mr. O'Shea.

Q. Yesterday I think you were asked by Mr. O'Shea to produce similar detail information regarding two items on Exhibit "X," on the sheet June-September, 1930, both dated "7/30," one a transaction with Pierce-Arrow and the other a transaction with the title "Chicago-Studebaker." Did you give Mr. O'Shea those documents this morning?

A. I did, and in this connection I notice while these credits are for labor only, I questioned our sales department why they inserted on the credit memorandum that was issued so many feet of glass at $3.50 a foot. They said that was merely to give some distribution of the charge, that it was only an estimate, and by checking back [fol. 933] these credit you will see that it is just an estimate because I have found no items in here so far that would indicate that credit was issued for this glass at $3.50 a foot.

Q. But that does not affect the figures on Exhibit "X" in the last column headed "Total," does it?

A. It does not, but it does affect the rate that you will get by dividing the footage into amount shown under glass. Included in that glass item is charges for installation.

Q. And sometimes for boxing, I suppose?

A. Boxing might be included. I explained previously in my testimony that charges as shown in Exhibit "X" were not properly divided as to the cost under the various heads—that is, glass and installation.

Q. That is, frequently you have only one charge; in other cases you have a partial separation of charges as between boxing, glass, freight, edging and installation, and in other cases you have them all detailed? Is that right—on this Exhibit "X"?

A. That is correct.

Q. And in each case you have given as full information as your records enable you to show?

A. I have. I notice on the credit for Studebaker, which was mentioned yesterday, the total amount of $5505.05, that it includes charges for replacements from Jacksonville, Florida, and from the Pacific Coast, as well as fourteen export replacements.

Q. What do you mean by export replacements?

A. Replacements made outside of the United States.

Q. Now, coming back once more to Exhibit "BB", and particularly to that portion of your former testimony as to which you were cross-examined, commencing at the foot of page 1203 of the manuscript record. I understand there that in order to get the warehouse selling expenses properly chargeable to Duplate you started with the total ware-[fol. 934] house sales of plate glass. Is that right?

A. That is true.

Q. And that total sales of plate glass and Duplate for the year 1928 amounted to $24,006,602.81. Is that correct?

A. That is correct.

Q. And those total sales called plate glass included Duplate sales amounting to $888,987.30. Is that correct?

A. That is correct.

Q. And your total warehouse expense for selling the total plate glass item in that year amounted to $2,679,908.13. Is that correct?

A. That is correct.

Q. So you then apportioned the selling expense between plate glass and Duplate in the proportion which the warehouse sales of plate glass bore to warehouse sales of Duplate. Is that correct?

A. That is correct.

Q. State whether or not in your opinion it was more proper to get your warehouse selling expense of Duplate in this way than to include in the warehouse sales all these other items other than glass, such as paint, lacquers, putty, and numerous other items?

Mr. O'Shea: Objected to on the ground it calls for a conclusion.

Mr. Christy: He is an accountant, Mr. Examiner. I think I have a right to ask that question.

The Master: Objection overruled. Exception noted to plaintiff.

A. I think it was logical to arrive at it in the manner in which we did, with the exception that if anything the proportion of expense of selling glass which included Duplate should have been higher than the percentage shown in that [fol. 935] method—than it did show—for the reason that Duplate was not a standard article on the market as plate glass is, and more effort would be devoted to the sale of Duplate per foot than to plate glass.

Q. Then your computation of warehouse selling expense of Duplate was, in fact, a very conservative one? Is that what you mean?

A. I would say it was.

By Mr. Smith:

Q. Mr. McHenry, in reply to a question of Mr. O'Shea's in cross-examination, I understood you to say that the books of the Pittsburgh Plate Glass Company showed that the warehouses made a profit in 1928 and other years. Did you so testify?

A. I did not. I said I didn't know what the profit of the warehouses or loss would be until I would consult the records.

Q. If it be the fact that the books show that the warehouses made a profit in any of the years of the accounting period, will you please tell the Master whether that profit was separated as between the profit on plate glass and the profit on Duplate?

A. It was not separated.

Q. In other words, if there be a profit on glass, it includes both the plate glass and the Duplate. Is that right?

A. It does.

Q. And take the matter of profits as between, let us say, paint and brushes; are those separated and segregated on the books?

A. They are separated as a paint item only—the brushes are included.

Q. The paint item includes the brushes?

A. Yes.

Q. So you cannot tell from your books how much profit you made on the brushes as distinguished from the paint, [fol. 936] any more than you could tell how much you made on the Duplate as distinguished from the ordinary plate glass?

A. No, we could not, and in with the plate glass sales is included the Easyset Store Construction.

By Mr. Christy:

Q. Which is composed largely of plate glass?

A. Yes, that is the reason for including it under that heading. It is not possible for us to run a profit and loss account for all the items sold in a warehouse, so we confine them to as few departments as possible in order to save clerical work.

By Mr. Smith:

Q. But the result shows the profit or loss to the company in any given year?

A. Yes, it does.

Q. Now, in your testimony here in repeated instances you have used the expression "cost of sales." By that do you mean the selling cost to sell a certain feetage of glass, or does that expression as you use it include the cost of the material as well as the selling cost?

A. It includes the cost of preparing glass for delivery, delivery expense and all expense in connection with that sale.

Q. It includes the production cost of the glass?

A. It does.

Q. It really means, instead of cost of sale, as Mr. Christy properly suggests, it means the cost of the glass sold, is what that expression comes to?

A. Yes, it attaches to it all the expense in connection with the sales.

Q. And with the production of the article?

A. Yes.

Q. Now, there was some testimony you gave today in which you told Mr. O'Shea that the earnings account for [fol. 937] 1928 showed commissions earned in the sum of

$45,699.47, and for the same year showed expenses of $17,883.86. I didn't understand what account that was. What account was it?

A. That account is the commissions earned on the sales made by general office only.

Q. Sales of what?

A. Sales of Duplate. We earned the commission of forty-five thousand odd dollars. Our Duplate expense account shows seventeen thousand dollars plus, to which would have to be added the general office expense and the salesmen's salaries and expenses. That was not allocated to this expense account during that period. We were just starting in to sell Duplate, and the division of the salaries and expense was overlooked.

Q. So that to do what Mr. O'Shea did, subtract the $17,883.86 from the $45,699.47, and to get what he termed a profit of $27,515.61, I understand would be misleading?

A. It would. It is only taking half of the horse.

Q. Mr. Hickman calls my attention to a matter we want to be certain is correct on this record. For the year 1928, in answer to Mr. O'Shea, you gave t[illegible]al sales, warehouses, $50,015,982.52. You gave total warehouse expense for 1928 of $8,191,352.08. I assume you didn't mean to give the impression that you subtracted the latter figure from the fifty million dollar figure, showing a net profit something like forty-two million dollars?

A. Oh, no. You have to include in there the cost of the goods sold in order to get your fifty million dollars' sales.

Q. The item of warehouse expense, $8,191,352.08. What was that in general?

A. That was the salesmen's expense, office expense.

Q. Advertising?

[fol. 938] A. Advertising. It does not include the cost of the glass or, in this instance, the paint.

Q. And does the same explanation apply to the figures that you gave for total warehouse sales for 1929 and for the first five months of 1930, and for the corresponding expenses of those years?

A. It does.

Q. Have you prepared a new Defendants' Exhibit "II" to correct the error which appeared on the Exhibit "II"

already offered with respect to the item entitled "Salvaged or Reclaimed Stock Taken into Possession"?

A. I have.

(Statement marked Defendants' Supplemental Exhibit "II.")

Q. Mr. McHenry, I show you this document which has been marked Defendants' Supplemental Exhibit "II," and ask you if that is the new exhibit that you have prepared and have just mentioned.

A. It is.

Q. As I understand it, the totals at the end of this exhibit are not changed in Supplemental Exhibit "II"?

A. They are not.

Q. But the item entitled "Salvaged or Reclaimed Stock Taken into Possession," in the old exhibit giving three amounts aggregating $151,435.65, has been changed to include under the head "Salvaged or Reclaimed Stock taken into Possession" in Supplemental Exhibit "II" the following three amounts: for 1928, $49,401.77; for 1929, $104,127.02; for 1930, $8,707.04, making a total of $162,235.83. Is that correct?

A. That is correct.

Q. As I understood your explanation, these items making up this $162,235.83 were included in your work sheets but by a typographical error were omitted from the original Defendants' Exhibit "II."

[fol. 939] A. That is correct.

Q. And these amounts aggregating $151,435.65, which appeared on the original Defendants' Exhibit "II" under the head "Salvaged or Reclaimed Stock taken into Possession," appear in the same amounts exactly in the Supplemental Exhibit "II" under the heading "Adjustments Resulting from Revaluations of Opening and Closing Inventories Based on Adjusted Cost."

A. That is correct.

Mr. Smith: We offer in evidence Defendants' Supplemental Exhibit "II."

Mr. O'Shea: I will not object to that provided that my cross-examination on Defendants' Master's Exhibit "II" shall be taken as applying to such matters as are appropriate to Defendants' Supplemental Exhibit "II."

Mr. Smith: You mean the cross-examination you have already made?

Mr. O'Shea: Yes.

The Master: That may be understood.

Recross-examination.

By Mr. O'Shea:

Q. Mr. McHenry, without going into and not meaning to ask you to check up the figures, will you please state from which one of Plaintiff's Exhibits 9, 9-A or 10, you would take the item under the heading "Salvaged or Reclaimed Stock taken into Possession," and totaling $162,235.83?

A. That was taken from Plaintiff's Exhibit No. 10.

Q. And it is your idea, as I understand it, that the Exhibits 9, 9-A and 10 eliminate from the cost of sales the full amount of $162,235.83?

[fol. 940] A. That is my understanding, as it is so marked on the exhibit.

By Mr. Smith:

Q. Which exhibit?

A. Exhibit No. 10.

By Mr. O'Shea:

Q. And you did not trace through Exhibits 9 and 9-A to determine whether there were any offsets to that amount?

A. I did not. I accepted the Exhibit No. 10 as filed.

PHILIP F. DATZ, recalled on behalf of defendants.

Direct examination.

By Mr. Smith:

Q. Will you look at Defendants' Exhibit "U," Mr. Datz? You were cross-examined this morning by Mr. O'Shea on Defendants" Exhibit "U," and he called attention to two orders, one being General Order 2057 and the other being General Order 2311, in which it appeared there were some estimated amounts of glass, and I asked you to ex-

amine your records to determine whether there were any other items in Exhibit "U" except the two which Mr. O'Shea picked out which contained estimated amounts of glass. Have you examined your records?

A. Yes, sir.

Q. Are there any other items which contain estimated amounts excepting the two I have mentioned?

A. No, sir.

Q. Now, have you the material here in respect to this General Order 2057?

A. Yes, sir.

[fol. 941] Q. You found delivery orders for the plates of plate glass that were sold by the Pittsburgh Plate Glass Company under this order in part, did you?

A. Yes, sir.

Q. You found those delivery orders for how many plates?

A. For 3006 plates.

Q. That would be of thin plate glass?

A. That is correct.

Q. How many plates of Duplate were included in this order 2057?

A. The order originally stated 3000 Duplate, but the shipping record on the order shows 2970 Duplates shipped, and the order was considered complete.

Q. Now, in order to make 2970 sheets of Duplate, how many sheets of thin plate glass would be required?

A. 5940.

Q. That is just double the number of the Duplate sheets?

A. That is right.

Q. And of that 5940 plates of plate glass you found delivery slips for 3006 plates, leaving 2934 plates for which you found no delivery slips. Is that right?

A. That is correct.

Q. Why, if you know, were those delivery slips not there for these 2934 plates?

A. The delivery slips may have been included in with the lot that have been investigated, but in quite a few cases we find that the order number was not placed on the delivery slip by Works No. 1, Pittsburgh Plate Glass Company, so that we were unable to identify the glass as shown on some of these delivery slips.

Q. That is to say, if I understand you, there may be delivery slips for these very 2934 plates, but on account of

the delivery slips omitting the identifying number, you couldn't identify them as covering these plates. Is that correct?

[fol. 942] A. That is correct.

Q. Now, Mr. O'Shea brought out that with respect to these 2934 plates of plate glass you took an assumed size of glass bracket as representing those plates. Is that true?

A. We did not take an assumed bracket size. We took the size as shown on the other deliveries of glass.

Q. You mean on the same order?

A. On the same order.

Q. What did the order call for—what kind of Duplate sheets—for what purpose?

A. The order calls for a Fisher Body back light, Part No. A-7011, which is of a peculiar shape, requiring a piece of polished plate glass 12 by 32 bracket size.

Q. Inches?

A. Inches.

Q. And that would be the bracket size you would have to use for all of these body lights for an entire order?

A. Of this particular pattern, yes.

Q. And, therefore, you assumed that that was the bracket size that was used for the 2934 sheets?

A. That is correct.

Q. Now look at your General Order No. 2311. Have you the material here to show the details of that?

A. Yes, I have.

Q. What did that cover—that order?

A. The order, Fisher Body, G. O. 2311, calls for 4500 back lights, Part No. A-7011.

Q. Was that order filled by the shipment of 4500 lights?

A. The order was noted by the shipping department as being complete, shipping 4500 plates.

Q. And those 4500 lights of Duplate would involve correspondingly 9000 pieces of one-eighth inch plate glass?

A. That is correct.

[fol. 943] Q. Of those 9000 sheets of plate glass, how many delivery slips did you find?

A. We located delivery slips showing the order number G. O. 2311, totaling glass, polished plate, 5062 plates.

Q. Leaving 3938 plates for which you did not find delivery slips?

A. For which we didn't find delivery slips showing this particular order number.

Q. Does the same explanation you have given with respect to not finding identified delivery slips under General Order 2057 apply to not finding such slips in General Order 2311?

A. That is correct.

Q. Now, what bracket size of plate glass was used in making the lights under that order No. 2311?

A. 12 by 32 inch bracket.

Q. Was that the bracket size that was required to make those lights?

A. It was.

Q. And, therefore, have you applied that bracket size to the plates 3938 in number for which you failed to find delivery slips?

A. Yes, sir.

(No cross-examination.)

(Adjournment taken until Wednesday, November 30, 1932, at ten o'clock A. M.)

[fol. 944] Wednesday, November 30, 1932.

Met pursuant to adjournment.

Counsel present as before.

RICHARD B. TUCKER, a witness produced on behalf of the defendants, having been duly sworn, testified as follows:

Direct examination.

By Mr. Christy:

Q. Where do you reside, Mr. Tucker?

A. Pittsburgh.

Q. And what is your present occupation?

A. Manager of glass sales, Pittsburgh Plate Glass Company.

Q. How long an experience have you had in commercial dealings in plate glass, window glass and similar products?

A. Since 1907.

Q. State in a general way what your experience has covered, not in detail, but in outline.

A. From 1907 to 1924 I was in charge of the Building Supplies Corporation of Norfolk, Virginia, a glass jobbing house; from 1924 to 1929 I was manager of glass sales of the Standard Plate Glass Company, and later president; and since 1929 with the Pittsburgh Plate Glass Company in the glass sales division.

Q. Back in 1907 when you first became connected with this business and during the succeeding period of time, did you know of and were you familiar with the product of the Pressed Prism Plate Glass Company of Morgantown, West Virginia?

A. Yes, sir.

Q. Known, I believe, as prism plate glass?

[fol. 945] A. Yes, sir.

Q. Can you state in a general way about when that came on the market commercially?

A. It came on the market in approximately 1905. Up to that time the Pressed Prism Plate Glass Company originally had endeavored to press tiles in prism glass, which were leaded and made into units to fit openings over the transom of store windows. The lead work was very unsatisfactory, and they later through development of their manufacturing process developed a means of making the plate prism in large sheets by rolling and pressing, and later grinding and polishing, which met with a very ready acceptance in the construction market, it being a very much more serviceable product than the small tiles leaded together.

Q. That is, if I understand your answer, before the introduction of this plate prism product prism glass was made in small pressed tiles?

A. Yes, sir.

Q. Which had to be leaded individually together to make a window light?

A. Yes, sir.

Q. And this pressed prism plate product supplanted that earlier product? Is that correct?

A. Yes, sir.

Q. You said they had a ready market. What do you mean by that?

A. I mean by that it was so much more satisfactory a product for the purpose of transmission of light through the transoms of show windows to the rear of the store that

the architects accepted it and specified it for construction work.

Q. Was there anything that you might call sales resistance connected with the dealing in the product?

A. No, sir.

[fol. 946] Q. Were you also familiar at that time, meaning 1907 and immediately thereafter, with the product known as wire glass?

A. Yes, sir.

Q. Both rough wire glass and polished wire glass?

A. Yes, sir.

Q. What was the nature of the market for these products?

A. The nature of the market for those products was a very hearty approval, not only by the architectural profession but by the fire insurance underwriters.

Q. Wire glass is a fire retardant, I understand?

A. Yes, sir.

Q. That product, if I understand, consisted of a sheet of glass having embedded in its center a lattice work of steel wire. Is that correct?

A. That is correct.

Q. For what was this wire glass used?

A. Wire glass was used as in glazing of windows in such exposures that represented a fire hazard. The underwriters gave us a lower rate on windows glazed with wire glass, with automatic fuse links for self-closing, as if that exposure had been of solid masonry.

Q. Did the polished wire glass present the same advantages?

A. The same advantages, except with the additional advantage it could be used in office buildings where you needed the clear glass for lighting purposes.

Q. And it was extensively specified by architects and used in offices and hotel buildings?

A. To a very large extent.

Q. Was there anything you could call sales resistance in the marketing of wire glass?

A. No, there was no sales resistance in the utilization of wire glass because the difference in fire insurance rates established on buildings that were not glazed with wire glass, as opposed to those that were glazed, in hazardous expos-

[fol. 947] ures, was so great that it paid for itself in saving of insurance within a very short period of time.

(No cross-examination.)

RENEWAL OF MOTION FOR ORDER REQUIRING PLAINTIFF TO PRODUCE CERTAIN BOOKS AND RECORDS

Mr. Smith: If the Master please, counsel for the defendants renew the request heretofore made upon the Master to order the plaintiff either to produce before the Master or to permit defendants to examine its documents and records for the years 1927, 1928, 1929, 1930, 1931 and 1932 with reference to the cost of production of laminated glass and the other matters as heretofore set forth in the typewritten transcript of the evidence in this case, as contained on pages 948 to 954 of the transcript, for the reasons and for the purposes therein more fully set forth.

The Master: Have you any additional reasons other than those presented at that time, Mr. Smith?

Mr. Smith: I don't know of any additional reasons except that the course of the evidence I think has justified renewal of this because I am hopeful that you may take a different view of it, and I call your attention particularly to the fact that Mr. O'Shea, the counsel for the plaintiff, has declined to withdraw and, in other words, stands upon Plaintiff's Exhibit 27 in which there is this enormous claim of loss of profits. It seems to me we are in a little different position.

The Master: Have you anything to say, Mr. O'Shea?

Mr. O'Shea: I would just say it has already been passed on by the Master here and also by the Court, and permission to do what counsel for defendants asks has been declined.

[fol. 948] Mr. Smith: It has not been passed upon by the Court. The Court said he would not interrupt the hearings to determine this question, but he would determine it at the trial. I submit, Mr. Shrum, we are entitled to equality of treatment here. We are satisfied you will give us equality of treatment in deciding this case so far as the evidence is produced, but we submit you have not given us equality of treatment on this matter because on this important point

you are keeping out evidence which is most material in this case; whereas, in spite of the great hardship on the defendant to prove its costs which have been ordered on the record and no hardship to this plaintiff who is out of the laminated glass business, no trade secrets here, we are prevented, we think unjustly, from showing the real facts in the case.

The Master: The request of the defendants' counsel is for the present denied.

Exception noted to defendants.

C. L. McHenry, recalled on behalf of defendants.

Direct examination.

By Mr. Smith:

Q. What were the warehouse sales of glass for the year 1930 in feet? Do you have that?

A. Warehouse sales in 1930 for the year was 31,042,485 feet.

Q. What were they for the first five months of 1930?

A. The first five months were 15,362,116 feet.

Q. And, in addition to that, were there factory sales of glass that are not in the warehouse sales?

A. Yes, sir.

[fol. 949] Q. What were they for 1930—for the full year?

A. For the year 1930 the factory sales were 14,924,790 feet. In the first five months of 1930 the factory sales were 5,382,826 feet.

Q. So that when you combine those two approximately what proportion of the sales of the year were sold in the first five months? When I say "combine those two" I mean combine the warehouse sales and the factory sales.

A. Practically 45 per cent.

Q. In the first five months of the whole year's sales?

A. In the first five months the sales were approximately 45 per cent of the total sales for the year.

Q. 1930?

A. 1930.

(No cross-examination.)

Defendants rest.

Rebuttal Testimony

SIDNEY W. CAULFIELD, recalled on behalf of the plaintiff in rebuttal, testified as follows:

Direct examination.

By Mr. O'Shea:

Q. Mr. Caulfield, you were on the stand before in this proceeding before the Master?

A. I was.

Q. Did you receive from Mr. McHenry or Mr. Datz of the Pittsburgh Plate Glass Company a number of orders with the accompanying requisition slips showing the glass delivered from Pittsburgh Plate Glass Company to its Duplate department for the manufacture of laminated glass? [fol. 950] A. I received such orders and what are called delivery tickets similar to the orders and delivery tickets used in making up the Defendants' Exhibit "U," I believe.

Q. And when did you receive those?

A. On Monday, November 28th.

Q. Have you had a tabulation of those orders received on Monday, November 28th, made showing the cutting loss that was occasioned to the defendants in this case on those orders?

A. I have had a computation made of some of those orders. It was physically impossible to calculate them all.

Q. Will you produce that calculation with respect to some of those orders? As I understand it, when you say "some of those orders" you mean orders in addition to the orders tabulated in Defendants' Master's Exhibit "U"?

A. Yes.

Mr. O'Shea: Plaintiff offers in evidence the tabulation produced by the witness, and requests that the same be marked Plaintiff's Master's Exhibit No. 30.

Q. Mr. Caulfield, will you state the circumstances under which Plaintiff's Exhibit No. 30 was made up?

A. Yes. I received from Mr. Datz and Mr. McHenry the orders and the delivery tickets with explanation from them as to how they prepared their Exhibit "U". Following the same general principle, I had prepared under my supervision a tabulation of other orders in the same way, and

with one exception this schedule is calculated in the same manner as Schedule "U." I might add that I laid out the work for my assistants to help me on it and I directly supervised it.

Q. Now, taking up this Plaintiff's Master's Exhibit 30, what is that first column on that exhibit?

[fol. 951] A. The first column is a reference to our work sheets, so that if a check of these figures is ordered or desired, it will be a simple matter to make such a check.

Q. Then the second column is prepared in the same way as the corresponding column on Defendants' Exhibit "U"?

A. Yes, sir.

Q. And the same with the order number column?

A. Yes, sir.

Q. And the warehouse column?

A. Yes, sir.

Q. And the date of order column?

A. Yes, sir.

Q. And the final shipping date column?

A. Yes, sir.

Q. And the material quantity column?

A. Yes, sir.

Q. And the double column under the heading "Duplate ordered" and the sub-heading "Description" and "Pattern No."?

A. Yes.

Q. And the column "Plates shipped quantity" is on the same principle and plan as that same column in Defendants' Exhibit "U"?

A. Yes.

Q. And is the same true of the next column headed "Size shipped to customer"?

A. It is.

Q. And is the same true of the column headed "Bracket size billed to customer"?

A. It is.

Q. And is the same true of the column headed "Sq. ft. area per plate"?

A. Yes, sir.

Q. And is the same true of the "Quantity pol. plate glass used Plates"?

[fol. 952] A. Yes; with this notation that we have only included in here the plates for which we actually found de-

livery slips. There may have been others on which the order number was not shown which we could not identify, and those of course we did not take.

Q. And is the same true of the next column headed "Actual size pol. plate taken from stock"?

A. Yes, sir.

Q. And is the same true of the column headed "Bracket size pol. plate billed Duplate"?

A. Yes, sir.

Q. Now, what have you to say about the next column as to its identity with any column on Defendants' Exhibit "U"?

A. That is not figured in the same method as was used in figuring Defendants' Exhibit "U." In Defendants' Exhibit "U" the number of plates used was multiplied by the area of the bracket size billed to Duplate. In this exhibit we have taken the area of the block size or, as stated here, the actual size of polished plate taken from stock, and computed the area of the actual size and multiplied that by the number of plates.

Q. To get what?

A. To get the area of the glas actually used.

Q. Now, have you anything to say with respect to the next column on this Plaintiff's Exhibit 30, which is headed "Plate glass footage actually used," as compared with the similar column appearing on Defendants' Exhibit "U"?

A. In my last answer I was considering that column as well as the preceding one.

Q. They were both computed in the same way?

A. Yes. One is the unit area of each plate actually used; the other is the multiplication by the number of plates.

Q. Now, in your column headed "Cutting loss per plate" and the total, I notice there you have in some instances a [fol. 953] black figure and in other instances a red figure. Will you please state what is the difference between the black figures and the red figures?

A. The black figures shown in the second column from the right is the difference between the square foot area of the plate actually used and the square foot area per plate billed to the customer. I mean the ultimate customer rather than Duplate. For example, on the first line it is the difference between 4.1806 square feet, which is the area actually used, and 4.0833 square feet, which is the area billed

the customer, in this case Studebaker Corporation. The cutting loss, therefore, as here computed is .0973 per square foot. Multiplying that by the number of plates used gives the total area as shown in the last column on the right. With respect to those items where the red figure is shown, the customer has been billed for a larger size than was actually used. For example, the first red ink figure represents a shipment to Motor Products Company, wherein that corporation was billed for a bracket size 14 by 42, as shown by our identification mark "2B" shown at the left. This customer was billed for the bracket size 14 by 42, which is a unit area of 4.0833 square feet. The actual size of plate taken from stock as shown by the delivery ticket was 13 by 42; the total area actually used, 3.7917, which means that the customer, the Motor Products Company, was charged with .2916 feet more than was actually used, it being, as I understand, the custom of the Pittsburgh Glass Company to always bill to the next even inch. Similarly, on these last two columns on the right-hand side, where no cutting loss is shown, the customer has been billed for the same size as was actually taken from stock.

Q. And in such cases you simply put a black dash opposite that item under the heading "Cutting Loss." Is that correct?

A. Yes, sir.

[fol. 954] Q. Mr. Caulfield, referring now to Defendants' Exhibit "U," have you computed the cutting losses on the glass specified in that exhibit on the principle or plan of showing the cutting loss resulting from the quantity of polished plate glass used as related to the quantity of plate glass billed to the ultimate customer?

A. I have computed the area of the glass actually taken from stock in the same manner as I have explained on Plaintiff's Master's Exhibit 30, and computed the cutting loss in the same manner.

Q. And what is the result that you got in computing Defendants' Exhibit "U" on that principle?

A. I came to a percentage of 4.63 as the cutting loss on that principle. I would have to refer to my work sheets to give you the footage.

Q. Would you just give us the figures that you used in computing Defendants' Exhibit "U" on that principle, and for that purpose you may refer to your work sheets?

A. The total area of the footage actually used, computed on the actual size delivered from stock, total 1,175,278 square feet, and the cutting loss computed on that basis amounted to 54,512 square feet, which results in a percentage of 4.63 per cent.

Q. Just as a matter of clarification, on this Plaintiff's Master's Exhibit 30, I think it is the fourth item from the bottom of page 1, I notice an entry there under the last six headings entitled "No tickets." Will you please explain what that means and what effect it has, if any, on the general result of the computation on this exhibit.

A. We could identify no record of delivery against this particular order, but inasmuch as we had picked out that order to be one of those to be analyzed, we showed that portion of it and stated that we could identify no deliveries. [fol. 955] We have used the phrase "No tickets." I mean by that we could not identify any deliveries. We don't know what if any cutting loss there might have been on that order. There might have been a cutting loss; there might have been no cutting loss. I can't tell. Whatever it was it would be so small in quantity as to have relatively no effect on the total. I mean the total of all these pages.

Q. Well, has it any effect at all in view of the fact that your result is obtained by addition of the quantity column as compared to the plate glass footage actually used column?

A. It has no effect at all. It is just as though that item were not typed in at all.

Q. Now, with respect to that same exhibit, just what policy did you pursue in picking out the orders that you have entered in there? What were your instructions to your assistants with respect to the manner of picking out orders?

A. Mr. McHenry was advised some time during last week, with the consent of Mr. Christy, as I understand it, that we would ask for certain records of orders, and in particular we asked for all orders covering more than 500 plates of a given size. The reason for that was we wanted to get the large orders to show as big a volume of footage as possible. Mr. McHenry produced those orders and produced records or compilations in respect to twenty-five of them which he had had time to make himself in the same manner as Exhibit "U." We used those twenty-five and

picked out all the other orders over 3000 lights and started on those first. I believe we computed all the orders with more than 3000 lights of a given size unless we inadvertently overlooked one or two. When we finished that we went on those that were within two or three thousand. We didn't finish those. You will find a few that are less than 2000 lights, but that is where in our examination the infor-
[fol. 956] mation was so apparent that it was right there and we could get that without any extra effort.

Q. Now, Mr. Caulfield, have you prepared a tabulation showing a comparison of the details of the contested items eliminated from cost in Plaintiff's Exhibits 9 and 9-A, and as stated to be the elimination in those exhibits on Defendants' Supplemental Exhibit "II"?

A. I have prepared such a statement.

Q. Will you produce that statement?

A. Yes, I have it here.

Mr. O'Shea: Plaintiff offers in evidence this comparative statement, and asks to have it marked as Plaintiff's Master's Exhibit No. 31.

Q. Now, Mr. Caulfield, did I understand that Plaintiff's Exhibit 9-A and Defendants' Supplemental Exhibit "II" practically checked down to the item on there entitled "Edged Duplate stock rejections"? Is that correct?

A. They check in total down to there and including the item you have just mentioned.

Q. Then you have taken up the next item, entitled "Adjustments resulting from revaluation of opening and closing inventories, decreases"; you have put in the figure as appears on Plaintiff's Exhibits 9 and 9-A, to-wit, $151,435.65, under your heading of "Plaintiff's Exhibits 9 and 9-A Actual Figures," and the same figure is used on Exhibit "II." Is that correct?

A. That is correct on that item.

Q. Then in the next item, which is entitled "Increases," by which I understand you mean increases of cost. Is that correct?

A. That is correct.

Q. You have put the off-setting items used in Plaintiff's Exhibits 9 and 9-A?

A. That is right.

[fol. 957] Q. And you find no such off-setting items in Exhibit "II"?

A. That is right.

Q. And that is true generally throughout this exhibit, the red figures representing off-setting items to the black figures. Is that correct?

A. That is right.

Q. Now, then, passing down that exhibit to the heading, "Extraordinary Expense" and the heading, "Mellon Institute Fellowship," you find that both those items check in both the Plaintiff's Exhibits 9 and 9-A and Defendants' Supplemental Exhibit "II" with the exception of one cent, which presumably is some mistake in addition I suppose?

A. Yes, I should say so. The item of the Mellon Institute checks exactly, the difference of one cent presumably being a mathematical error under the heading, "Extraordinary Expense."

Q. The same is true under the heading entitled "Commissions to Pittsburgh Plate Glass Co."?

A. Yes, sir.

Q. In the "Experimental Expense" you find difference as between Plaintiff's Exhibits 9 and 9-A and Defendants' Supplemental Exhibit "II" to the extent of $872.64. Is that correct?

A. That is correct. I state there that the difference is not reconciled because while I have my work sheets of what is included in the $140,601.94, I do not know what Mr. McHenry included. I would like to add here that the following item, which also shows a difference and entitled "Triplex Suit and Legal Expense," may account for part of this difference. Some of the expenses may have been charged to different accounts by myself and Mr. McHenry in making up those two items. There is one item of $452 which might be transferred from one account to the other. We don't know just what the nature of the expense was. It was either one or the other heading.

[fol. 958] Q. Now, will you please explain generally the next item, which is headed "Manufacturing Cost of Returned Sales"?

A. That is taken from Exhibit 9-A.

Q. When you say "that is taken"—you see there are so many figures there. You had better specify figures so as to indicate what you mean by the word "that."

A. Those figures are taken from Exhibit 9-A.

Q. You mean all the figures are taken from Exhibit 9-A or only the figures referred to as having been taken from 9-A?

A. I should say all the figures in the first column are taken from 9-A and 9. The first item, $812,770.93, is the net credit given to customers, as adjusted by Lybrand in Schedule 9-A, and as shown on page 12 of that report, and also the adjusted figure shown on page 6 referred to yesterday. The next item of $181,490.10 is the total, Column "C," on page 15. The difference between the two represents the amount that was actually eliminated, namely, $631,280.83. That figure can also be computed through Exhibit 9. The difference shown under the same group we are talking about, the difference between our figures and Defendants', namely, $91,436.55——

Q. When you say "our figures and defendants'" you mean by that the difference between the figures shown on Plaintiff's Exhibits 9 and 9-A and Defendants' Exhibit "II"?

A. Yes, sir, that is what I referred to.

Q. Proceed with your answer.

A. The difference of $91,436.55 was, I believe, thoroughly covered by the witness Mr. McHenry yesterday. It represents the total of the returns subsequent to June 1, 1930, in the amount of approximately $83,000, as shown by Defendants' Exhibit "W," and plus an amount shown on [fol. 959] Exhibit 9-A of $7875.13, which is the difference between the return figures as used by Lybrand, Ross Brothers & Montgomery in making up their summary and the $820,646.06, which were the original book figures before the adjustment referred to.

Q. Am I to understand then that in effect your last answer is that there is a reconciliation between the figures on Plaintiff's Exhibits 9 and 9-A and Defendants' Exhibit "II," so that they, in your judgment, even up?

A. Yes. I believe that my recollection of Mr. McHenry's testimony is right. I believe he placed on the record yesterday a reconciliation that shows what the difference amounts to and what it covers.

Q. Now the next item, "Difference in Sales and Costs as per page 12 of Exhibit 9-A." Will you please explain that a little more fully on the record?

A. In making up Exhibits 9 and 9-A and translating those to terms of profit on profit-making sales and losses

on loss incurring sales, as computed by Lybrand, Ross Brothers and Montgomery, several slight differences were noted between the figures which a re-examination of the Duplate books showed and their original books. In total those amounted to $3354.57 over the entire period, and are commented on by Lybrand in Exhibit 9-A and particularly are listed as a deduction on page 12. I have, therefore, in this Exhibit 31 tied in exactly with the figures shown on Plaintiff's Exhibit 9-A, as shown by page 12 and page 15.

Q. Mr. Caulfield, have you computed in tabulation form a statement showing profit making sales and loss incurring sales, using the actual glass cost of raw polished plate glass?

A. I have computed such a tabulation showing the profits and losses on sales of that characterization, and using as a base glass cost the manufacturing and administrative cost in manufacturing the glass, plus allowance for interest on [fol. 960] the investment, and eliminating from cost the same items that are eliminated in Plaintiff's Master's Exhibits 9 and 9-A. In other words, I have followed those two exhibits, substituting a different glass cost.

Q. Will you produce that tabulation?

Mr. Smith: Of course, this is not rebuttal, and we want to offer an objection at the proper time when the offer is made.

Mr. O'Shea: Plaintiff offers in evidence the tabulation produced by the witness, and asks to have it marked in evidence as Plaintiff's Exhibit 32.

Mr. Smith: Objected to, first, as generally incompetent and irrelevant, and second as clearly not being rebuttal. This matter, of course, if the Master please, was part of the plaintiff's case in chief, and if we are to follow this procedure, then we shall have the right to answer that and they reply, and so on ad infinitum.

Mr. Christy: If you will remember, we took that objection at the time the plaintiff closed their case.

Mr. Smith: In other words, Mr. Shrum, we will never get to the end of this case. This is the third time the plaintiff has reopened the case.

Mr. O'Shea: Let us see if we have reopened the case, or done anything we haven't a perfect right to do. In the midst of the plaintiff's case, just before the closing of the plaintiff's prima facie case, there was a request made on

the part of the plaintiff that the defendant furnish the Master information with respect to its actual glass costs. The Master ordered that that information be submitted. Counsel for the defendant took an exception to that and [fol. 961] went to the Court. The Court said that such information should be submitted. Now, the whole argument on that was that the plaintiff would claim that the defendant was only entitled to charge its actual cost as distinguished from the so-called market price of that raw glass. The conclusion from that was that there would have to be a recomputation of the profits and losses. There would be no purpose in having the defendants' actual costs put in this case unless there were a recomputation of the profits and losses based on those costs. Now, at the time that the defendants' report showing the actual costs of their glass was put in the record here on page 908 there was a discussion, and I was asked just what my claim would be, and I stated at that time that my claim would be that the allowance that the defendant would be permitted to have in this case for raw glass would be its manufacturing and administrative cost of that raw glass plus an allowance for interest on investment. What point are we at here now? It is just this: that your Honor must have before you a recomputation, or else you will have to do the work yourself. The facts are all in the record; the raw glass, manufacturing and administrative cost, the interest on investment and the other items that appear on page 908 of the record, as claimed by the defendants. Your Honor has got to have a recomputation. You have either got to do it yourself or you have to direct one of the parties to do it. Now that is what I have done here—simply to recompute on our theory of the cost of that raw glass what the net result will be. It may be checked by anyone who wants to. Moreover, I predict now, and I have never been in an accounting case in my life where it was not necessary after the law of [fol. 962] the case had been established by the Master—at that point when he establishes the law of the case there will have to be a recomputation. Your Honor may allow them items we have excepted to; your Honor may disallow some of those items. If you do, you have to recompute. You have to take your pencil and paper and sit down and recompute. It is going to be an arduous thing for the Master to do, and I assume what the Master will do will be

to either call in an accountant to help him or ask both parties to come in and recompute it. That is what I am doing here. It is not a reopening of the case. The case was there, and the case is there. It is simply a recomputation based on the facts in this record. I am putting it in through this witness simply for the reason that he has tabulating machines and one thing and another which I haven't got and you haven't got.

Mr. Smith: If the Master please, the witness has just finished saying this exhibit was prepared on a different basis than something heretofore offered.

Mr. O'Shea: He said no such thing, if I may interrupt.

Mr. Smith: I think he did. I understand this exhibit is prepared on a different basis of computation than the computation already submitted by the other side. If the plaintiff by way of brief wants to file with the Master any argument he pleases, he has the right to do that and we should not object. What we object to, Mr. Shrum, is to now offer in evidence this exhibit. This will go in not as something to help you, but it will go in as evidence in the case, and the case has been closed twice by this plaintiff. I submit [fol. 963] to you this is highly improper and should not be offered as evidence. If they want to file that little book with you as an argument of theirs, something they say will help you, let them file it, but it ought not to be offered as evidence in the case.

Mr. O'Shea: It ought to go up to the Court with the Master's report, and I assume it will, because the practice in these proceedings is not only to send up the specific exhibits in the case but all other material that was laid before the Master.

Mr. Smith: We certainly object to the introduction in evidence of something that is not evidence unless the plaintiff is to be allowed again to begin this case.

Mr. Christy: I call the attention of the Master to the fact this was all definitely put on record at page 939 of the record and we protested. There is a colloquy commencing at page 935 and continuing through page 939. This exact subject was raised at that time. We objected to it. Our objection was overruled, and we gave notice that because we did not think that the plaintiff had made an adequate presentation of its case that we would object to that being done in rebuttal. That is just exactly what has happened, and now they are offering it in evidence in rebuttal.

Mr. O'Shea: I call your Honor's attention to my statement when I was asked what my claim would be. I stated: "If I am now asked what I shall claim as the cost of glass used by the Pittsburgh Plate Glass Company in the manufacture of infringing sales, which I now designate and will refer to as Duplate, I shall claim that as a matter of law the Master must use the figures appearing on the 'State-[fol. 964] ment of Cost of Thin Polished Plate Glass for the Years 1928, 1929 and 1st Five Months of 1930,' as follows: Manufacturing and Administration, year 1928, .15590; plus 'Interest on Investment 6%,' .02553."

The Master: From what page do you read?

Mr. O'Shea: I am reading now from pages 937 to 938, and I have concluded my statement by stating that I respectfully submit that all of that statement I have just made is indicated by the accounts as filed and the exceptions which have been filed thereto.

Mr. Smith: And he begins that statement by saying, "Plaintiff rests, with a reservation, as I stated this morning, that I intend to put in, by way of brief or otherwise, a calculation which has to be made on these records." And now we are confronted with this document offered in evidence in this case.

The Master: We will take an adjournment until after lunch. I would like to consider both the arguments counsel put in to which you have referred this morning and also this exhibit. I will make a ruling after lunch.

(Recess taken until two o'clock P. M.)

Afternoon Session

The Master: Plaintiff's request to have Plaintiff's Master's Exhibit No. 32 received into evidence subject to the defendants' objection is denied, with leave to the plaintiff to submit his brief with this or such other computations as he believes will be of assistance to the Master in the disposition of this case.

[fol. 965] (Exception noted to plaintiff.)

Mr. O'Shea: May I ask to have the document produced by the witness which the Master has just refused to receive

in evidence marked for identification as Plaintiff's Master's Exhibit No. 32?

The Master: It may be so marked.

(Statement marked Plaintiff's Master's Exhibit No. 32 for identification.)

Mr. O'Shea: In view of the Master's ruling with respect to Plaintiff's Master's Exhibit 32 marked for identification, plaintiff is proceeding on the theory that in view of the fact that it was refused in evidence and only marked for identification, plaintiff may not, therefore, ask the witness to further explain that exhibit. Is that correct?

The Master: That is correct.

Mr. Smith: Do I understand, Mr. Shrum, that the witness's testimony with respect to Exhibit 32 remains in the record—what Mr. Caulfield has said about that?

Mr. O'Shea: All he testified was he made a computation, and here it is.

(Testimony of Witness Caulfield read by reporter.)

Mr. Smith: I submit that testimony, which amounts to sworn evidence, should not be in the record. Our examination on this exhibit would be very brief, but it is a lengthy exhibit, we have not had a chance to study it, and if it is going to be submitted to you as a brief and Mr. Caulfield be permitted to swear it is so prepared, I think we should have a right to ask him a few questions.

[fol. 966] Mr. O'Shea: I merely mean my mouth is closed in asking him to further explain it. If the defendants wish to ask him anything about anything that is in this record, either marked for identification or anything else, I think we will have to pass on those questions as they come up.

The Master: That is correct.

Mr. O'Shea: I close my case in rebuttal.

SIDNEY W. CAULFIELD, resumes the stand.

Cross-examination.

By Mr. Smith:

Q. Mr. Caulfield, have you before you a copy of Plaintiff's Exhibit 30?

A. Yes.

Q. Will you look at the first line on page 1, headed to the left, "Studebaker Corporation"? Now, coming over to the sixth column from the right-hand margin, being headed "Actual size pol. plate", and so forth—do you see that column?

A. Yes.

Q. In this instance that size is 14 inches by 43 inches?

A. Yes, sir.

Q. Now, the next preceding column to the left shows there were 2500 plates in that order, does it not?

A. Plates of what, Mr. Smith.

Q. Polished plate glass.

A. Plates of polished plate glass, yes, sir, of that size.

Q. And you multiplied to get the area of each of those plates 14 inches by 43 inches, getting in square feet 4.1806, which latter figure is shown in the fourth column from the right-hand margin. Is that right?

[fol. 967] A. A multiplication is made. I used a table that is prepared for that purpose by the Pittsburgh Plate Glass Company.

Q. I mean that is the effect of it?

A. That is what it is, yes.

Q. And then you took your 2500 plates at 4.1806 square feet each, and arrived at the result of 10,452 square feet shown in the third column from the right-hand margin?

A. Yes, sir.

Q. Now, to get the cutting loss per plate, which is in this instance .0973, shown in the second column from the right-hand margin, you subtracted the figure 4.0833, which is shown in the eighth column from the right-hand margin, from the figure 4.1806 shown in the fourth column from the right-hand margin, leaving a difference of .0973 shown in the second column from the right-hand margin?

A. Yes, sir.

Q. And the last mentioned figure is a decimal representing square feet?

A. You refer to the last figure you mentioned?

Q. Yes, .0973.

A. That is a decimal representing square feet.

Q. In other words, it is 9/100ths plus of a square foot. Is that right?

A. That is right.

Q. Now, the result of that was to deprive the Duplate Corporation of the cost of each of those pieces of plate glass, which at the bracket size was 14 x 44 feet, and substitute for them 14 x 43 square feet, was it not?

A. The effect of that was to show the cutting loss calculated on the size actually used rather than the size which Pittsburgh Plate Glass Company billed Duplate. The size Pittsburgh Plate Glass Company billed Duplate is shown in the fifth column, namely, 14 x 44. Had this schedule been computed on the basis of what was billed to Duplate, [fol. 968] the area in the fourth column, or what would correspond to the fourth column, would be 4.2778 and the cutting loss would have been the difference between that and 4.0833 shown in the eighth column from the right.

Q. Which would have been what?

A. Which would have been a cutting loss of .1945, per light, such loss being based on what was billed to Duplate rather than what was actually taken from stock and shipped to Duplate.

Q. In other words, in this particular instance, in round figures the cutting loss would have been twice as great on the last theory than on the theory shown in this exhibit?

A. Yes.

Q. And you have done that in spite of the testimony in this case that it is the universal custom in the glass trade to sell glass by even brackets?

A. I did that under instruction of plaintiff's counsel to use the area of the glass actually used.

Q. But in point of fact the bracket size for which in the trade generally a customer of a glass company would have been charged, where the actual size was 14 x 43, would have been 14 x 44 because there is no bracket 14 x 43. Isn't that true?

A. I don't know that is the custom in the trade. In fact, I believe the reverse is true. We have bought glass to the uneven inch, namely, received a sheet 14 x 43 and were billed for 14 x 43. In fact, that is the principle the foreign glass manufacturers used, and I refer particularly to Pilkington & Company of Great Britain, who ship and bill to the uneven inch as well as the even inch. I believe it is the practice of Pittsburgh only to bill the even inch.

Q. This case where you bought glass to an uneven inch like that, was that bought from a foreign producer?

[fol. 969] A. Yes.

Q. Have you ever bought glass in substantial quantities from an American producer who has billed you for glass other than in even brackets?

A. Not in any substantial quantities except in certain sizes.

Q. Do you mean a size below a foot, or something like that?

A. I would say that would be the only case where it was in any sizable volume. There may have been a few isolated cases. If they have stock on hand, they sometimes do.

Q. You don't deny, Mr. Caulfield, that it is the practice in the United States of America, not only of the Pittsburgh Plate Glass Company but generally in the trade, to sell glass at these even figured brackets, do you?

A. No.

Q. And you have used that method throughout this exhibit, have you not?

A. I have.

Q. Now, let me call your attention to the item on this page, the name of the customer being Motor Products Corporation. Do you see that one?

A. Which one?

Q. 7B, I think it is.

A. Yes, I see 7B.

Q. Now, in that case instead of figuring a cutting loss, you figured a cutting profit, did you not?

A. Yes, sir.

Q. And may I ask in this right-hand column, the one nearest the right-hand margin, are those figures given in dollars or in square feet?

A. Those are square feet.

Q. So in that case you have figured a cutting profit of 2,333 square feet?

[fol. 970] A. Yes, sir.

Q. The size shipped to the customer in that instance, as shown by the tenth column from the right-hand margin, was in inches 12-13/32 x 41?

A. Yes, sir.

Q. In the next column to the right—that is, the ninth column from the right—you show the bracket size billed to the customer in that case as 14 inches by 42 inches?

A. Yes, sir.

Q. In the fifth column from the right-hand margin of this exhibit you show the bracket size of the polished plate glass

in this order billed by the Pittsburgh Plate Glass Company to the Duplate Corporation as being 14 x 42 inches, do you not?

A. That is correct.

Q. If you had figured the area as billed to the customer at 14 x 42 inches, you would have shown no cutting loss in that case?

A. We would have shown no loss and no profit. It would have been a blank item, as are some of those underneath.

Q. But in order to show a red ink figure you took not what was billed to the customer but the area of the actual size of polished plate taken from stock, which as shown in the sixth column from the right is 13 x 42 inches, did you not?

A. I didn't have any purpose in showing——

Q. I am not asking for the purpose. I asked the fact. (Question read.)

A. The purpose was not to show either a black or red ink figure. What I did was to calculate the area based on the size of the sheet actually delivered, doing that under instructions of plaintiff's counsel.

Q. But you didn't take the size of the sheet actually delivered, did you?

A. Actually taken from stock, yes.

[fol. 971] Q. You said a moment ago actually delivered, and you didn't take that?

A. Delivered to Duplate, yes, sir—taken from stock.

Q. If you had taken the size shipped to the customer, you would have taken the size 12-13/32 x 41 inches, would you not?

A. I have taken——

Q. (Question read.)

A. That was the size shipped to the customer.

Q. And you didn't take that?

A. No.

Q. And you didn't take the size that was billed to the customer, 14 x 42 inches.

A. No.

Q. Instead of that you took the size 13 x 42 inches, which was the actual size taken from stock?

A. That is correct.

Q. And you know there is no bracket 13 x 42 inches, don't you?

A. I think my previous answers have covered that. There is no billing in this country, or it is not the practice of the Pittsburgh Plate Glass Company to bill such a size, but I have taken the area as actually taken from stock and shipped to Duplate.

Q. Although under the custom of the trade in this country, which you do not deny, it was obligatory on Duplate to pay for a sheet of glass 14 x 42 inches because that was the next bracket size, you have substituted a plate 13 x 42 inches, being the actual size taken from stock. Is that the English of it?

A. I think so.

Q. And the result of that is to show what you say is a profit in the cutting of plate glass?

A. Yes.

Q. And that explanation applies to all your red ink figures on this schedule, does it not?

[fol. 972] A. Sure.

Q. If you are dealing in actual sizes instead of bracket sizes, why didn't you take the actual size of the polished plate taken from stock, being 13 x 42 inches, and compare that with the actual size shipped to the customer, being 12 13/32 x 41 inches, and thus show a cutting loss?

A. Because I am considering here what the delivery tickets show, namely, that glass was delivered to what is called on those tickets the laminated department from another department of the Pittsburgh Plate Glass Company, and I am considering Pittsburgh Plate Glass Company and Duplate as being a single entity or synonymous term, and I am taking the final area for which Duplate or Pittsburgh Plate Glass or both, if they are considered as an entity, received from its customer, namely, Motor Products, to-wit, 14 x 42, and an area of 4.0833 for which Motor Products paid Duplate, and I am taking the area of the glass actually used by Duplate or Pittsburgh Plate Glass Company.

Q. Now, the next bracket size to the size shipped to the customer, which size shipped in this illustration was 12 13/32 x 41 inches, the next bracket size to that is 14 x 42 inches, is it not?

A. That is right.

Q. And that you took in making this calculation?

A. Yes, sir.

Q. But when it comes to allowing the Duplate Corporation for the price which, under the custom of the trade, it had to pay, you declined to take the bracket size, didn't you?

A. Yes, I took what was actually used on the theory Duplate and Pittsburgh Plate Glass Company are the same entity.

Q. So by taking the bracket size with respect to the shipment to the customer and not taking the bracket size with respect to the glass purchased by the Duplate Corporation, [fol. 973] you have actually figured out a cutting profit here, haven't you?

A. Yes.

Q. Do you think that is fair?

A. If Duplate were a separate corporation like Triplex had been, and had to pay for 14 x 42, it certainly would have been fair and the only method that could have been used. I have figured it this way, as I say, under instructions on the theory the two companies were synonymous, and we calculated on what was actually used.

Q. But the effect of what you have done is to deprive the Pittsburgh Plate Glass Company of the ordinary custom and right of the trade? In other words, to sell in these even inches brackets.

A. I deprived the Pittsburgh Plate Glass Company of a profit it makes with other customers.

Q. And the reason the Pittsburgh Plate Glass Company is entitled to that profit, if it be entitled to it, is because that is the custom of the trade?

A. Yes, if it be entitled to it, that is the reason.

Q. Do you think, as a matter of accounting, that is fair what you have done here?

A. From the standpoint of excluding all elements of profit, yes.

Q. I am asking you as a man, do you think that is fair what you have done in this exhibit in relation to either these black figures or red figures?

Mr. O'Shea: I object to that, if your Honor please.

Mr. Smith: I think that is a perfectly fair question. This is cross-examination.

Mr. O'Shea: This opinion testimony I do not think is proper.

The Master: He can give his opinion as an accountant if he wishes. I think he should.

[fol. 974] Q. Do you think that is fair?

A. The consensus of opinion among the accountants is that when a firm doing business for profit, which is the purpose of the organization, sells to another concern it should make a profit, but it is generally frowned upon for one department of a concern to show a profit on merchandise delivered to another department of the concern, and I believe you will find most accountants frown upon inter-departmental profits.

Q. However, your company is seeking heavy damages from the Pittsburgh Plate Glass Company for profits on plate glass, are you not?

Mr. O'Shea: If your Honor please, that is asking the witness an opinion as to the law of the case.

Mr. Christy: That is a perfectly legitimate cross-question. It would be allowed by any Court anywhere.

The Master: Answer the question.

A. As I understand this, the way the counsel for the plaintiff is setting up his claim is that he is not asking for any profit on glass, but he is asking that the glass be included in cost at the manufacturing and administrative cost, plus an allowance for interest on investment. That is my understanding of what is being attempted to be shown here.

Q. If you are seeking to charge the Pittsburgh Plate Glass Company for profits on the sales of plate glass, don't you think as an accountant that that seller should be treated like any other seller of that commodity?

A. I should think if we were seeking profits on plate glass, we would seek all the profits. That is only a layman's opinion of what patent law is. I know nothing about it.

[fol. 975] Q. I wasn't asking you about patent law. I was asking you your opinion as an accountant. I understand you are an accountant?

A. If I were seeking profits, I would seek all the profits.

Q. If by chance you were seeking all the profits, would you allow all the losses on the other side?

A. I would have to depend on what the law was. I wouldn't seek it. The attorney would have to.

Q. As an accountant you would just try to get all the profits and you would let the lawyer figure out the question of the losses?

A. I would let him figure out the law. I would make calculations as an accountant, leaving the law to him.

Q. We will pass that for the present. Now, have you Plaintiff's Exhibit 31 before you?

A. Yes.

Q. And will you please get Plaintiff's Exhibit 10 and have that before you?

A. Yes.

Q. I am looking at Plaintiff's Exhibit 31. Will you please do so, Mr. Caulfield?

A. Yes.

Q. As I understand that exhibit, it shows at the foot of the first column that has a heading on it, being "Plaintiff's Exhibits 9 and 9-A," clear down at the bottom the footing of $2,547,122.81.

A. Yes, sir.

Q. Which are the eliminations from the Duplate costs as set up by Exhibit 9-A prepared by Lybrand, Ross Brothers & Montgomery under instructions from Mr. O'Shea as to what they should include and what they should exclude?

A. Yes, as stated by them.

Q. Now, you compare that with the figure of eliminations in Defendants' Exhibit "II," which are shown in this Ex-
[fol. 976] hibit 31 in the second column at the foot as being $3,242,838.57. Is that right?

A. That is right.

Q. And the difference between those, if I understand this, is the amount shown in the third headed column which is $695,715.76.

A. That is right.

Q. Now, will you look at Plaintiff's Master's Exhibit No. 10? Have you got that?

A. Yes.

Q. Did you prepare that exhibit or was it prepared under your supervision?

A. As I recall the circumstances of the preparation and inclusion of Exhibit 10, during the testimony about a year ago Mr. O'Shea, counsel for the plaintiff, desired certain information in a handy form and asked Lybrand, Ross Brothers & Montgomery to type for his use a section of

a recapitulation that they had made up in order to tie in with the books of the company their eliminations, as shown by page 12 of Exhibit 9-A, and that this Exhibit 10 shows some of the eliminations only. It does not show certain other eliminations, nor does it show offsets of eliminations.

Q. You have been pretty active in this case? Did you see Plaintiff's Exhibit 10 before it was offered in evidence?

A. I think the circumstances surrounding it are that it was brought over and pasted together in the office where the testimony was being held at the time, and there was some errors even made in pasting, I believe. It was all done right in the office of Brown & Critchlow.

Q. Did you see this Exhibit 10 before it was offered in evidence? was the question.

A. Maybe ten minutes or so, yes.

Q. I notice the heading of Exhibit 10 reads as follows: "Duplate Corporation Recapitulation of Contested Items [fol. 977] Eliminated from Cost of Duplate Sales (stated in dollars)." Have I read it correctly?

A. Yes, sir.

Q. Did you take any exception to that heading when that exhibit was offered in evidence by your counsel in your presence?

A. Did I take any exception?

Mr. O'Shea: I don't know the purpose of this testimony, Mr. Master.

Mr. Smith: We will try to develop the purpose. This is cross-examination.

The Master: We will hear his answer.

A. I took no exception.

Q. If Exhibit 10 had been intended, as you now say, to show only a part of the contested items, that should have been included in the caption, should it not? I am asking you as an accountant.

A. Yes, the intention was to get on one certain sheet of paper this certain set of figures so the attorneys would not have to go through the twenty-nine volumes of Exhibit 9 in questioning and cross-examination, and this was typed over night from the work papers of Lybrand, Ross Brothers & Montgomery, which had this title, and which original work papers contained two other sheets, one showing certain items of cost that were eliminated that are not in here, but

which are in Exhibit 9 and also in Defendants' Supplemental Exhibit "II." There was another sheet showing certain contra items. These were not typed and added to the exhibit because the purpose of this exhibit was only to have an easy reference to certain figures on which the attorneys were then examining and cross-examining.

Q. Well, as a matter of fact, you didn't get it on one sheet, did you?

[fol. 978] A. No, we got the footage on one sheet and the dollars and cents on a second sheet.

Q. And you took two sheets and pasted it together? I mean somebody took two sheets and pasted them together?

A. Yes, I take that to be one sheet now.

Q. And, of course, if there had been other items which should have gone into this exhibit, there would have been no difficulty in pasting a little more on the sheet, would there?

A. No, no difficulty.

Q. Were you present when Mr. Sharpe testified in this case on this subject of Exhibit 10?

A. I believe so.

Q. You have been present at every hearing in this case throughout, have you not?

A. I think I have been present at every one. If I have missed any, it is only one; in fact, I don't believe I missed any.

Q. I read from Mr. Sharpe's testimony on pages 133 and 134 of the transcript of testimony as follows—this is the examination of Mr. Sharpe by plaintiff's counsel, Mr. O'Shea:

"Q. Mr. Sharpe, I show you two schedules, and ask you if you prepared those two schedules.

"A. Yes, sir.

"Q. Will you just explain briefly what those first two pages are?

"A. I had better take the second page first. The second page represents the number of feet of losses, as fully described in the headings on the columns, which totals are the same as appear on the Duplate Corporation's schedules 'J.' The memorandum at the bottom of page 2 represents the exact wording as it appeared on these Schedules 'J,' whereas the classification in the columns is according to our classification, which is contained on our details of contested

items eliminated from the account. Page 1 represents the cost of glass lost in process, as calculated by using the area in feet, as shown on page 2, times the average cost of pro-[fol. 979] duction, up to the respective stages each month, as shown on the Duplate Corporation Schedules 'J.' I might further add, the paragraph contained on page 17 of my report—This paragraph is headed 'Detail of Contested Items Eliminated from Cost of Duplate Sales'—has a short explanation of those items, in addition to what I have said."

"Mr. O'Shea: I now offer in evidence these two schedules referred to by the witness, and ask that they be marked as Plaintiff's Master's Exhibit No. 10."

In view of that testimony, do you still say that Exhibit No. 10 was prepared to show only a part of the contested items eliminated?

A. I think the language of the witness Sharpe is plain. He states that these eliminations are taken from company's Schedule "J," and he further states that the details, and I take the word "details" to mean all the entries, all the items of contested items eliminated, is shown in the report which he filed, namely, 9 or 9-A. He just uses the phrase "of my report," and he states further that that paragraph is entitled "Detail of Contested Items Eliminated from Cost of Duplate Sales." As an accountant, therefore, I would take the detail of contested items so shown on his report and consider these to be only some of those items as were taken from the Schedules "J" for some specific purpose.

Q. What is there in the testimony of Mr. Sharpe which I have just read to you that indicates in any way whatever that Schedule 10 is only a part of the contested items instead of all of them?

A. He uses the following sentence: "The second page represents the number of feet of losses, as fully described in the headings on the columns, which totals are the same [fol. 980] as appear on the Duplate Corporation's schedules 'J.'" Now. I can't see that he could take something that is not on Schedules "J" and say it came from Schedules "J."

Q. Now, Mr. Caulfield, the very next sentence to what you have read is this: "The memorandum at the bottom of page 2 represents the exact wording as it appeared on these

Schedules 'J.' whereas the classification in the columns is according to our classification, which is contained on our details of contested items eliminated from the account." In view of that statement, do you still say that Sharpe was only giving a partial list of contested items in Exhibit 10 instead of a complete list?

A. He says——

Q. Just answer the question. (Question read.)

A. Decidedly, and in the sentence you have just quoted he uses the phrase, "which is contained on our details of contested items eliminated from the account." The only place that I recollect that that phase is used—"Contested items eliminated from the account"—is in Schedules 9 and 9-A.

Q. Now, Mr. Caulfield, as a matter of fact, if you would desire to reconcile Exhibit 10, which shows total eliminated items of $2,033,449.78, with your Exhibits 9 and 9-A as set forth on Plaintiff's Exhibit 31, you would have to explain a difference of over half a million dollars, wouldn't you?

A. Yes.

Q. And I notice that the heading of Plaintiff's Exhibit 31 refers only to Exhibits 9 and 9-A. Why didn't you refer to Exhibit 10 in that heading?

A. Because 9 and 9-A is a complete report of the accounting and it is there that the phrase "Details of Contested Items Eliminated from Cost" is used, and it is there you will find all those details which tie in with the figures given by Lybrand on page 12 of 9-A, and which is tied in [fol. 981] direct to the books of Duplate Corporation. I therefore took Exhibits 9 and 9-A which give in detail all those contested items.

Q. The item which accounts for by far the greater part of the difference between Defendants' Exhibit "II" and Plaintiff's Exhibits 9 and 9-A, as set forth on your Plaintiff's Exhibit 31, is this item of manufacturing cost of returned sales, is it not?

A. No, sir. The Plaintiff's Exhibit 31 shows that there was eliminated from cost in Exhibits 9 and 9-A a total of $631,280.83. The Defendants' Supplemental Exhibit "II" shows that the amount eliminated was $722,717.38. The difference between the defendants' figure and the plaintiff's figure is, therefore, only $91,436.55, the nature of which was fully explained by Mr. McHenry, and, therefore, that

difference of approximately ninety-one thousand is not the major portion of the $695,000.

Q. Will you look at the column in Exhibit 31 entitled, "Defendants' Supplemental Exhibit 'II'?" Is it not a fact that the figures in that column correspond substantially with Exhibit 10, with certain additional items which the defendants say should be included in this accounting and which you, on your side, excluded?

A. The figures shown in the Defendants' Supplemental Exhibit "II" correspond in a great many cases with the figures shown on Exhibit 10 because Exhibit 10 reflects some of the details of contested items as shown by 9 and 9-A. The effect of the Defendants' Supplemental Exhibit "II" is to leave the impression that there has been excluded from cost a total of $3,242,838.57, whereas, actually Lybrand in tying their figures up with the books of Duplate have only excluded $2,547,122.81, which I believe that any accountant can very readily see from the examination of Lybrand's report 9-A.

[fol. 982] Q. If you will look at this column on Exhibit 31 entitled "Defendants' Supplemental Exhibit 'II,'" beginning at the top of that column and reading down several lines to and including the figures $151,435.65, does that not correspond exactly with the Plaintiff's Exhibit 10?

A. It corresponds exactly with Exhibits 10, 9 and 9-A.

Q. And the remaining figures in that column on Exhibit 31 are the figures which the defendants contend were improperly excluded in this cost accounting, are they not?

A. Do I understand that defendants do contend that?

Q. Yes.

A. If they contend that, I suppose that is what it means.

Q. In the column that I am referring to and headed "Defendants' Supplemental Exhibit II" on Exhibit 31, the next figure below the figure of $151,435.65 that I have just mentioned is the figure $60,334.61. That is a figure shown on Exhibit 10, is it not, in the second column from the right-hand edge of Exhibit 10?

A. That figure is shown in Exhibit 10, yes.

Q. The next figure below in this same column of Exhibit 31, being $162,235.83, is the figure shown at the foot of the fourth column from the right of Exhibit 10, is it not?

A. That figure is shown on Exhibit 10, yes.

Q. Now, in this same column of Plaintiff's Exhibit 31,

opposite the item "Extraordinary Expense," is a set of five figures, the first of which is $21,273.82 and the last of which is $20,351.45. Have I read that correctly?

A. Yes.

Q. Those figures are shown in Plaintiff's Exhibits 9 and 9-A, are they not?

[fol. 983] A. If I may make one correction to your statement, Mr. Smith. Those don't all come under the heading "Extraordinary Expense." The fact that that stands out there is a typographical error. Extraordinary expense is the first item of $21,273.82 in the column you refer to. As I recall it, it was special moving expense, and each following item refers to the verbiage on the left-hand side of the page.

Q. You mean just shift them down one line?

A. If you shift that word "Extraordinary Expense" to the right. I thought you misunderstood.

Q. The first item in this set of five figures I have just mentioned is "Mellon Institute Fellowship"?

A. The first item is "Extraordinary Expense."

Q. $21,273.83?

A. Yes.

Q. And the next item is "Mellon Institute Fellowship"?

A. Second, yes.

Q. And the next is "Commissions to Pittsburgh Plate Glass Co." $220,742.95, and the next is "Experimental Expense" $139,729.30, and the next is "Triplex Suit and Legal Expense" $20,351.45?

A. Yes, sir.

Q. And those same figures appear on Exhibit 9 or 9-A, do they not?

A. If you are referring to the column headed "Defendants' Supplemental Exhibit II."

Q. That is what I am referring to.

A. I have been unable to find them exactly in those amounts in statements 9 and 9-A, and yesterday, Mr. McHenry, I believe, failed to give the items which made them up. In general, I agree that most of those items are found there, but there are three small differences noted in connection with these items.

Q. What do the differences amount to in dollars, approximately?

[fol. 984] A. About $2700. The difference between $3500 and $872.

Q. Is it not—perhaps you don't know this—is it not the fact the next item in this same column of Exhibit 31, being $722,717.38, was obtained by taking the manufacturing cost of returned sales as claimed by the defendant, being a figure of approximately $840,000, and adding thereto returned sales since this account was made up of about $83,000, and subtracting the figure of $181,490.10, which is shown in the first column on Plaintiff's Exhibit 31, being a column that bears no heading?

A. That is not exactly correct, Mr. Smith.

Q. Let us have it correctly.

A. As explained by the witness Mr. McHenry yesterday, it is the total credits to customers of an amount of approximately $820,000, as shown by page 6 of Exhibit 9-A, plus the approximate amount of $83,000, returns shown by Defendants' Exhibit "W," less the stated amount of $181,490.10.

Q. And the last item in this same second headed column in Exhibit 31 that I have been talking about, $72,060.42, that is an item for allowances claimed since July 1, 1930, when the former accounting stopped. Is that right?

A. As shown by Exhibit "X."

Q. Is it not the fact that in accordance with the request to your company or its counsel, Mr. O'Shea, the Pittsburgh Plate Glass Company gave to you on Monday evening of this week, this being Wednesday afternoon, a set of orders and delivery slips covering shipments of one-eighth inch plate glass from the Pittsburgh Plate Glass Company to the Duplate Corporation during the accounting period, these orders aggregating two hundred and fifty in number approximately?

[fol. 985] A. He gave me such orders and delivery tickets which we used in making up our Plaintiff's Exhibit 30, I believe it is, and I should judge there are approximately two hundred and fifty in number. I didn't count them.

Q. And you took those orders and delivery tickets to the office of Lybrand, Ross Brothers & Montgomery in this city?

A. Yes, sir.

Q. And how many men worked on those exhibits on Monday night and yesterday?

A. Including Mr. Downey and myself, I believe it was seven on Monday night, and I believe it would have been

about four or five during yesterday, outside of stenographers.

Q. I am not speaking of stenographers. And were you with those men on Monday night while they were examining these orders and papers and selecting the ones that are reflected in the exhibits that you have produced here today?

A. Yes, sir.

Q. It is a fact that out of that two hundred and fifty orders your Exhibit No. 30 refers to only fifty numbers in all, or approximately fifty numbers?

A. I think it refers to more than that. I will tell you exactly.

Q. That is what I would like to know.

A. These aren't all in order. I will give you the highest reference. There were approximately ninety odd in number. In reference to that exhibit, the pages of which were typed as we finished the work, you will notice that the "B" numbers run up to 68-B. Those were orders that we selected. There were also twenty-five orders to be added to that which have the suffix "A", and those were twenty-five orders which Mr. Datz himself picked out for us and calculated for us, with the exception of the calculation of the area on the theory under which this is prepared. He [fol. 986] calculated the number of plates.

Q. Outside of these twenty-five Mr. Datz calculated for you, or selected, if that is what you mean, who selected the particular delivery orders that should be included in this Exhibit 30?

A. While I was there I did; while I wasn't there Mr. Downey did. I left the instructions to show the largest number of plates, therefore the heaviest volume of glass, so that we could get as broad a picture in the short time at our disposal as possible. My instructions from plaintiff's counsel were to take all orders if we could, which was physically impossible.

Q. How late did you stay there?

A. I left about eleven or eleven-thirty Monday night, and Mr. Downey joined me later at the hotel at twelve-thirty. Monday night it might have been eleven instead of eleven-thirty. I don't know the exact minute. Last night I checked out of the building at ten o'clock.

Q. And you say that you produced all of the orders that were as large or larger than three thousand plates each?

A. We endeavored to, yes. We may have slipped up on one or two and some smaller orders.

A. And then you examined some orders that were each between two thousand and three thousand plates, did you not?

A. Yes, that was done yesterday.

Q. You didn't complete that list of orders?

A. Didn't complete them.

Q. It seems though that in addition to that you did produce in this exhibit some orders running between one thousand and two thousand plates?

A. Yes, there were some instances as I explained in my direct testimony this morning.

[fol. 987] Redirect examination.

By Mr. O'Shea:

Q. Mr. Caulfield, on Plaintiff's Master's Exhibit 31, referring particularly there to the item in the column headed "Defendants' Supplemental Exhibit II," and being in the amount of $60,334.61, as I understand your testimony you say you took that from Plaintiff's Exhibit 10, did you not? I don't mean you took it. I mean it appears on Plaintiff's Exhibit 10, does it not?

A. Counsel asked me whether it was on Exhibit 10, and my answer was yes.

Q. And on Exhibit 10 it appears on the second page thereof in the second column from the right, does it not?

A. Yes.

Q. And that column is headed as follows: "Company's eliminated cost of rejects charged to process costs and later deducted (see contra)." As an accountant, what would you understand that phrase "see contra" to mean?

A. Contra means on the other side—that there is some item on the other side of the fence offsetting in whole or in part such an item. It is a reference to look somewhere else.

A. As an accountant, therefore, would you look some place else for what the contra entry might be?

A. Yes.

Q. Now, in order to make it clear, does the entry under the column "Defendants' Supplemental Exhibit II," and being entitled "Elimination of reduction in Cost of Duplate from General Expense—Advertising," and being in the amount of $1,263.47, appear any place on Plaintiff's Exhibit 10?

A. No, sir. The witness Mr. McHenry explained yesterday that that was compiled from Schedules 9.

[fol. 988] Q. When you say "Schedules 9" you mean?

A. Exhibit 9—the various months of Exhibit 9.

Q. So that in order to get that figure it was necessary for Mr. McHenry in making up his Exhibit "II" to consult Exhibit 9? Is that correct?

A. I don't know where else he could get that figure except from Exhibit 9.

Q. Does the item appearing in the second column on Plaintiff's Exhibit 31, entitled "Defendant's Supplemental Exhibit "II," and entitled under the subheading "Extraordinary Expense," and being in the amount of $21,273.82, and also the item in the same column and being entitled under the sub-heading "Mellon Institute Fellowship," in the amount of $11,250, as well as the item entitled under the sub-heading "Commissions to Pittsburgh Plate Glass Co.," being in the amount of $220,742.95, and the next item entitled under the sub-heading "Experimental Expense," and being in the amount of $139,729.30, and the next item under the sub-heading "Triplex Suit and Legal Expense," being in the amount of $20,351.45, appear any place on Plaintiff's Exhibit 10?

A. No, sir, they do not.

Q. Where in any records or exhibits in this accounting would you have to go in order to find out where those items and amounts are shown?

A. For four of them the only exhibit that I can recall would be the monthly statements under Exhibit 9, and the fifth item of experimental expense of $139,729.30 might be taken from Exhibit 9 or some compilation from Defendants' Exhibit "K," although this does not agree with the total of Exhibit "K."

Q. And that same thing is true of the next item entitled "Triplex Suit and Legal Expense," in the amount of $20,351.45?

A. I think Exhibit 9 is the only place that would be found.

[fol. 989] Q. At page 134 of the record before the Master, that being the place at which Exhibit 10 was introduced, I quote from the testimony of the witness Sharpe as follows: "I might further add, the paragraph contained on page 17 of my report—this paragraph is headed 'Detail of Contested Items Eliminated from Cost of Duplate Sales'—has a short explanation of those items, in addition to what I have said." As an accountant what do you understand is the reference to his report on page 17?

A. Why, my only understanding is that I would want to look at the report.

Q. What report do you think he is referring to there?

A. Either 9 or 9-A. I would like to see 9-A first. Exhibit 9-A, as I understand it, has an explanation of the detail of contested items to which Mr. Sharpe refers in the answer that you have quoted me. I see a paragraph so headed.

Q. And what page does that appear on?

A. Page 17.

Q. Have you any source of knowledge from which you are able to testify as to whether or not Duplate Corporation was obligated to pay for any particular size of bracket?

A. I don't know of any arrangement between Duplate and Pittsburgh Plate Glass Company, if I understand the question.

Q. Well, is there any doubt in your mind as to whether you understand the question or not?

Mr. Smith: Don't argue with your own witness. He understands it.

A. I think I understand the question, Mr. O'Shea. I don't know of any agreement one way or the other.

Mr. Smith: Mr. Shrum, I am not certain whether you entered in the record what your wish is with respect to [fol. 990] these exhibits we prepared here that are double numbers. I don't like to leave the record uncertain.

The Master: We will leave it as it is.

(Plaintiff rests in rebuttal.)

(Testimony closed.)

STATEMENT OF DEFENDANT IN RESPONSE TO MASTER'S ORDER

State of Pennsylvania,
County of Allegheny, ss:

Before me the undersigned, a notary public in and for said state and county, personally appeared Carroll L. McHenry, who having been duly sworn, deposes and says as follows:

I am of mature age and for the last eight years have been auditor of the Pittsburgh Plate Glass Company. Among my duties has been the auditing of the books of account of Duplate Corporation, the defendant in this case. I am familiar with the defendant's books and with its accounting methods. In accordance with the order of the Master, I have been requested by defendant's counsel to make a complete statement in debit and credit form of the accounts of the defendant for its entire manufacture and sale of its so-called "non-shatterable" glass down to June 1, 1930, at which latter date I am informed, the defendant discontinued the use of gelatin as a binder between the glass and the pyralin in its product.

The statement of account is attached hereto. Sheet 1 is a complete statement of the results of the business of the manufacture and sale of the defendant's product. Sheet 2 is a summation of the footage of the product manufactured [fols. 991 & 992] and sold. Sheets 3, 4 and 5 are respectfully analyses of the times in Sheet 1.

The account above set forth correctly exhibits the results of the defendant's operations as shown upon its books to the best of my knowledge and belief.

Carroll L. McHenry.

Sworn and subscribed to before me this seventeenth day of September, 1930. Howard O. Rogers, Notary Public. My commission expires March 6, 1931. (Seal.)

ACCOUNTING OF DUPLATE CORPORATION COVERING YEARS 1928-1929 AND 1930 UP TO DATE OF USING CASEIN A

		1928			1929			1930 TO 6/3		
Sales	1,081,147' 3"	2,156,147.42		2,301,771- 3	4,364,589.77		692,455- 8	1,128,486.58		
Less Returns	118,699' 0"	232,023.91		282,410-10	542,163.08		24,918- 9	46,429.07		
	962,448' 3"	1,924,123.51		2,019,360- 5	3,822,426.69		667,536-11	1,081,627.51		
Less Allow.& Adjts.		52,297.26			38,297.08			8,331.75		
NET SALES	962,448' 3"		1,871,826.25	2,019,360- 5		3,784,129.61	667,536-11			1,073,
COST OF SALES										
Glass		1,514,254.75			2,159,062.17			512,776.80		
Pyralin		445,333.80			706,855.53			182,.44.51		
Labor		245,985.00			320,075.54			73,082.83		
Supervision		27,282.73			63,121.89			16,960.60		
Office Expense-Factory		16,245.43			40,478.22			10,549.97		
Transportation		5,885.82			4,419.04			857.27		
Fuel, Power & Light		12,038.63			57,645.81			15,288.63		
Machinery Repairs		27,752.22			54,728.46			14,747.52		
Building "		18,240.78			4,728.69			1,375.98		
Supplies		25,259.74			44,579.46			14,951.73		
Miscellaneous Expense		40,014.31			100,340.74			49,815.41		
Water		335.30			2,140.38			1,545.06		
Templates		1,447.94			5,907.83			1,178.15		
Rubber Bags & Covers		22,107.85			29,030.59			6,018.16		
Hole Drilling		825.83			7,763.80					
Experimental Expense		49,973.69			52,471.79			38,425.60		
Land Rental		3,000.00			6,000.00			2,500.00		
Obsolescence		4,429.79			45,114.39					
Depreciation		5,759.35			47,150.59			24,351.50		
Amortization		-			26,624.63			11,820.90		
Insurance		1,551.72			1,478.40			771.25		
Truck License		12.00								
Taxes					11,598.41			4,000.00		
Loss in Storeroom Stock					16,568.08					
Extraordinary Expense					17,657.14			3,621.16		
Interest on Investment 6% on	$1,000,000.00	60,000.00			60,000.00			25,000.00		
		2,525,731.68			3,885,521.60			1,011,786.01		
Inventory Increase or Decrease	203,366.13			121,740.43			28,302.89			
Less Cost Transferred to Research & Specialty	10,015.57			4,823.34			19,287.97			
Less Cost Ind. Samples	2,835.21	216,216.91		4,540.91	112,376.18		4,300.30	4,714.52		
Manufacturing Cost		2,309,514.77			3,997,897.78			1,016,500.35		
ADMINISTRATIVE										
Traveling Expense	1.834.74			1,041.55			144.51			
Donations	1,875.00			7,500.00			1,875.00			
Miscellaneous	1,866.91			9,649.85			9,575.72			
Salaries	7,507.14	13,083.79		9,649.70	27,841.10		5,911.02	17,506.25		
SELLING EXPENSE										
Commission, etc.	85,746.55			105,300.18			29,648.55			
Packing & Shipping	22,449.67			58,895.71			19,859.69			
Advertising	2,984.21	111,180.43	2,433,778.99	29,917.51	194,113.40	4,219,852.28	11,955.71	61,481.95		1,0
			561,952.74			435,722.67				
OTHER INCOME										
Interest		1,404.19		1,873.27				344.25		
Profit on Machinery & Miscel.Sales		.52	1,404.71	477.20		1,396.07		88.95		
NET LOSS FOR PERIOD			560,548.03			434,326.60				

†In [illegible] Original Exhibit.

CORPORATION COVERING YEARS 1928-1929 AND 1930 UP TO DATE OF USING CASEIN ADHESIVE

SPECIALTY GLASS JANUARY & FEBRUARY 1930

1929			1930 TO 6/1			OLD PROCESS	NEW PROCESS	TOTAL		
2,301,771- 3	4,364,589.77		692,455- 8	1,128,186.58		5,912'	2,188'	8,100- 0	19,298.39	
282,410-10	542,163.08		24,918- 9	46,439.07				947- 9	1,857.50	
2,019,360- 5	5,822,426.69		667,536-11	1,081,621.51				7,152- 3	18,040.89	
	58,297.08			8,331.75					147.32	
2,019,360- 5		3,784,129.61	667,536-11		1,073,295.76			7,152- 3	17,893.57	
	2,159,062.17			512,776.80		4,048.32	1,740.06	5,788.38		
	706,855.53			182,444.51		3,666.36	635.50	4,301.86		
	320,075.54			73,082.83						
	63,121.89			16,983.60						
	40,478.22			10,549.97						
	4,419.04			857.27						
	57,645.81			15,288.63						
	54,728.46			14,747.52						
	4,728.69			1,375.98						
	44,579.46			14,951.73						
	100,340.74			49,815.41						
	2,140.38			1,545.06						
	5,907.83			1,178.15						
	29,030.59			6,018.16		5,842.59	2,552.88	8,395.47		
	7,763.80									
	52,471.79			38,425.60						
	6,000.00			2,500.00						
	45,114.39									
	47,130.59			24,351.50						
	26,624.63			11,820.90						
	1,478.40			771.25						
	11,598.41			4,000.00						
	16,568.08									
	17,657.14			3,621.16						
	60,000.00			25,000.00						
	3,885,521.60			1,011,786.01				18,485.71		
121,740.45			28,302.59			2,493.65	849.58-	1,649.05		
4,823.34			19,287.97				1,034.00			
4,540.91	112,376.18		4,300.30	4,714.32		891.90		1,929.90	18,204.86	
	3,997,897.78			1,016,500.33						
1,041.55			144.51							
7,500.00			1,875.00							
9,649.85			9,575.72							
9,649.70	27,841.10		5,911.02	17,506.25						
105,300.18			29,668.55							
58,895.71			19,859.69							
29,917.51	194,113.40	4,219,852.28	11,953.71	61,481.95	1,095,488.53					
		435,722.67†			22,192.77 †				311.29 †	
1,873.27				344.25						
477.20†		1,396.07		88.95	455.20					
		434,326.60 †			21,759.57 †				$ 311.29 †	

SUMMARY OF FOOTAGE

Sheet 2.

		1928	1929	1930	TOTAL
		962,448' 3"	2,019,360' 5"	667,536' 11"	3,649,345' 7"
Duplate Net Sales					
Duplate Inventory 5/31	40,942				
Less Edge Depr. Shrinkage	294				
	40,648				
Made in May New Process	4,197				
" " " Old "	86,451				
Less Sales Rejects in Stock	5,028				31,426'
					3,680,771' 7"
Sales Rejects on Sales Years 1928-1929 = .1189%					
Sales 1930 667,537' .1189% =	79,370' Rejects				
Returned to 5/31/30	24,918' 2"				
Credit for Rejects to be returned					54,451' 3"
					3,626,320' 4"
Duplate Net Footage					
Plus Samples Used					5,982'
SPECIALTY					
Sold January & February — Old Process	8,918'				
Inventory 2/25/30 " "	8,884'				9,556'
					3,641,858' 4"
TOTAL					

Sheet 5.

Sheet 3

DUPLATE CORPORATION

ANALYSIS OF EXPENSE ITEMS

	1928	1929	1930
Glass Used — Footage	3,722,601	5,287,582	1,620,151
Pyralin " "	2,758,302	3,198,639	954,474
Pyralin — Sheets	546,827	628,569	186,729
LABOR			
Polished Plate Cutting Dept.	17,587.29	29,920.47	8,494.73
Pyralin Dept.	18,897.97	22,764.80	3,780.71
Assembly & Pressing Dept.	126,601.08	160,013.58	26,432.40
Edging Dept.	82,898.66	107,376.75	34,374.99
TOTAL	245,985.00	320,075.54	73,082.83
SUPERVISION - Number of Persons	9	19	10
OFFICE EXPENSE (FACTORY)			
Labor	11,976.23	28,732.76	8,595.26
Material	4,269.20	11,745.46	1,954.71
TOTAL	16,245.43	40,478.22	10,549.97
TRANSPORTATION - Trucking	-	-	-
FUEL, POWER & LIGHT			
Electric Power & Light Purchased	8,617.88	6,021.82	1,992.43
Steam Power "	4,987.15	5,596.80	7,051.85
" " Produced	-	39,935.29	4,870.37
Gas Purchased	-	10.00	-
Compressed Air Purchased	60.24	201.15	336.52
Repairs	4,368.36	5,880.75	1,037.46
TOTAL	18,033.63	57,645.81	15,288.63
MACHINERY REPAIRS			
Conveyor	2,968.84	6,715.79	3,922.92
Autoclave	14,873.15	24,816.44	5,334.88
Glass Racks & Buggies	927.34	4,801.40	372.87
Cleaning Machine	1,266.10	3,260.10	918.49
Edging Machines	6,458.41	9,916.34	2,787.03
Miscellaneous	1,258.38	5,218.39	1,411.33
TOTAL	27,752.22	54,728.46	14,747.52
SUPPLIES			
Gelatin	925.86	974.21	-
Pumice & Rouge	681.52	360.70	82.30
Caps, Gloves, etc.	1,721.72	1,790.32	461.25
Press Blotting Paper	4,162.26	7,141.89	81.82
Ducking or Canvas	1,520.31	1,713.59	10.29
Emery	7,956.05	1,314.14	505.00
Carborundum	261.70	4,849.43	508.82
Miscel. Storeroom Items	6,030.32	11,048.52	4,093.58
Cuffs, Wheels & Aprons-Cutting Dept.	-	2,124.91	652.22
Aprons, Gloves & Smocks-Assembly "	-	2,935.43	26.58
Dib. Phthalate	-	5,645.82	-
Carbitol	-	3,604.00	-
Diethylene Glycol	-	1,076.50	6,024.67
Rubber Covers	-	-	2,231.82
" Diaphragms	-	-	273.40
TOTAL	23,259.74	44,579.46	14,951.73

DUPLATE CORPORATION

ANALYSIS OF EXPENSE ITEMS

	1928	1929	1930
MISCELLANEOUS EXPENSE			
Material	13,122.40	26,553.80	1,261.36
Labor	23,512.96	41,137.36	23,652.15
Steam	13.13	1,031.74	538.90
Water	43.73	1,244.48	28.27
Electric Current	3.44	90.87	35.15
Small Contingent Fund Items	1,242.46	3,018.09	2,001.16
Telephone & Gas	87.75	588.46	-
Safety Expenses	1,404.70	1,687.47	620.66
Production Control	-	8,862.38	8,072.59
Fire Protection	-	3,827.30	1,763.17
Industrial Engineering	-	5,795.72	4,710.86
General Miscellaneous	583.74	1,577.65	1,052.31
Inspection Expense	-	4,925.42	6,078.83
TOTAL	40,014.31	100,340.74	49,815.41
EXPERIMENTAL EXPENSE			
Traveling Expense	1,571.45	-	118.76
Rent Factory Bldg.	309.28	43.36	-
Material	34,097.24	29,261.20	20,569.36
Labor	15,995.72	23,167.23	17,737.48
TOTAL	49,973.69	52,471.79	38,425.60
EXTRAORDINARY EXPENSE			
Dismantling & Moving Equipment	-	17,657.14	3,621.16
PACKING & SHIPPING EXPENSE			
Supervision	196.03	2,512.33	360.58
Labor Packing	4,127.52	11,719.73	5,439.62
" Box Making	1,604.08	2,207.13	-
Hay	632.21	606.72	-
Paper	628.22	741.03	-
Lumber	7,377.21	6,729.04	-
Nails	302.66	334.75	-
Supplies	56.57	9,014.43	5,327.74
Fuel, Power & Light	99.45	935.99	292.78
Office Expense	2,227.74	3,166.26	486.88
Machinery Repairs	144.64	167.76	18.70
Building	36.15	127.78	54.87
Miscel. General Expense	901.72	8,303.43	687.37
Trucking	1,826.31	2,931.04	919.50
Tools	19.84	119.34	-
Production Control	1,861.84	-	-
Rent Building	407.48	199.58	-
Boxes and Cases	-	9,079.37	6,272.25
TOTAL	22,449.67	58,895.71	19,859.69

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DUPLATE CORPORATION

ANALYSIS OF EXPENSE ITEMS

ADMINISTRATIVE	1928	1929	1930
DONATIONS			
Mellon Institute Fellowship	1,875.00	7,500.00	1,875.00
MISCELLANEOUS			
Fire Protection	579.11	977.00	1,357.40
Moving Equipment	205.77	-	-
Drawings	106.66	163.43	-
Stationery & Equipment & Supplies (Office)	260.62	519.18	578.17
Rent .N.J.Penning's Office - G.O.	-	761.92	314.75
Moving Expense - N.J.Penning & J.H.Sherts	609.96	-	-
Miscellaneous	104.77	36.87	1,080.48
E.I.DuPont Attorneys Fees	-	385.57	-
Attorneys Fees - Triplex Suit	-	6,805.86	2,499.75
Legal Expense - Casein	-	-	452.00
" " - Foreign Patents	-	-	1,612.08
Expense Auto Shows	-	-	1,731.09
TOTAL	1,866.91	9,649.85	9,575.72
SALARIES			
Workmen's Add'l. Compensation	-	-	2,749.8
Traffic Dept. - G.O.	-	-	281.28
Drafting Dept. "	-	745.36	-
E.I.DuPont Attorney	-	1,837.10	-
Miscellaneous	793.89	-	1.25
Patent Dept.	2,111.43	4,069.24	661.15
Purchasing Dept.-G.O.	1,177.80	1,200.00	500.00
Accounting Dept. "	891.33	1,200.00	1,300.85
Treas. " "	534.49	600.00	416.65
Engineering " "	1,662.72	-	-
N.J.Penning	335.48	-	-
TOTAL	7,507.14	9,649.70	5,911.02

Commission all paid to Pittsburgh Plate Glass Co. as Sales Agents, percentage on sales.

Pittsburgh Plate Glass Co. account for this item August 1930 shows a loss of $4,461.00 covering period from start of Duplate Corporation to date.

[fol. 999] IN UNITED STATES DISTRICT COURT

Report of Master Sur Account—Filed January 12, 1934

[References are to side folios of this Record. All other references are to pages not contained in this printed Record.]

To the Honorable, the Judges of the Said Court:

The undersigned, to whom was referred the above-entitled case, respectfully reports as follows:

That this is a Master's Report in a patent equity accounting case which comes to the Master by reason of his appointment under two decrees of your Honorable Court, as follows:

Decrees under Which the Master is Operating

Under date of December 9, 1929 your Honorable Court entered an interlocutory decree adjudging the patent in suit (No. 1,182,739) to be valid and infringed by the defendant, Duplate Corporation, the said decree being in all respects confirmed by the Third Circuit Court of Appeals, and providing, inter alia, as follows:

"4. That the plaintiff recover from the defendant the profits, gains and advantages which the said defendant has received or made or which may have arisen or accrued to it by the manufacture and sale of strengthened glass in infringement upon and violation of the invention of claim numbered 12 of said Letters Patent of the United States No. 1,182,739.

"5. That the plaintiff recover from the defendant the damages resulting to plaintiff from the infringement by the defendant of claim numbered 12 of said Letters Patent of the United States No. 1,182,739.

"6. That this case be referred to G. Dixon Shrum, of Pittsburgh, Pa., as a Special Master of this Court, who is [fol. 1000] hereby appointed to ascertain, take and state and report to the Court an account of the quantity of strength-

ened glass described and claimed in claim numbered 12 of said Letters Patent of the United States No. 1,182,739 made, used or sold by defendant and also the gains, profits and advantages which the defendant has received or which have arisen and accrued to it from infringement upon the said exclusive rights of plaintiff under said Letters Patent as to claim numbered 12 thereof, and also the damages which the plaintiff has suffered because of defendant's said infringement upon claim numbered 12 of said Letters Patent of the United States No. 1,182,739."

A Supplemental Bill of Complaint against Duplate Corporation and Pittsburgh Plate Glass Company was subsequently filed by the plaintiff under authority of an Order of Court dated October 7, 1931, and Pittsburgh Plate Glass Company consenting thereto, an interlocutory decree dated December 5, 1931 was entered, providing, inter alia, as follows:

"3. That the plaintiff recover from said supplemental defendant, Pittsburgh Plate Glass Company, the profits, gains and advantages which the said supplemental defendant has received or made or which have accrued to it from its said infringement of the said Letters Patent, together with the damages suffered by the said plaintiff from such infringement, and that with respect to any and all recoveries, adjudged against the said Duplate Corporation by way of profits, damages, costs or otherwise, the said supplemental defendant, Pittsburgh Plate Glass Company and the said Duplate Corporation shall be jointly and severally liable therefor.

"4. That the Special Master heretofore appointed by this Court, G. Dixon Shrum, Esquire, of Pittsburgh, Pennsylvania, shall in the accounting proceedings now pending before him ascertain, take, state and report to this Court [fol. 1001] an account of the quantity of strengthened glass described and claimed in claim 12 of said Letters Patent of the United States No. 1,182,739, made, used or sold by the defendant, Pittsburgh Plate Glass Company and also the gains, profits and advantages which the defendant, Pittsburgh Plate Glass Company, has received or which have accrued to it from said infringement upon the exclusive rights of plaintiff under claim 12 of said Letters Patent

and also the damages which the plaintiff has suffered because of the said supplemental defendant's infringement upon claim 12 of said Letters Patent of the United States No. 1,182,739."

The accounting period was of two years and five months duration, beginning January 1, 1928 and ending May 30, 1930.

The nature of the Infringement

United States Letters Patent No. 1,182,739 were issued May 9, 1916 to Edouard Benedictus and, by mesne assignments, finally became the property of the Plaintiff, Triplex Safety Glass Company of North America, which was formed in June, 1926, with an original investment of $500,000.00, subsequently increased to a little over $2,800,000.00.

The patent in suit deals with laminated or "shatterproof" glass, which is made by sandwiching a layer of adhesive between two layers of ⅛-inch plate glass, the result of which is a glass product that will crack but not shatter, thereby substantially eliminating the danger to the occupant of an automobile from being cut by flying glass. The Benedictus patent called for the use of gelatin as the adhesive. In order that gelatin may be used in this manner, however, it is necessary that it be substantially dehydrated, that is, deprived of water, which was accomplished in the Benedictus patent by means of a dehydrating agent.

[fol. 1002] Prior to the infringement complained of the Pittsburgh Plate Glass Company sold considerable ¼-inch plate glass to automobile manufacturers for use as windshields and windows. In December of 1927, however, the Pittsburgh Plate Glass Company and du Pont Viscoloid Company organized the Pittsburgh Safety Glass Company (whose name was later changed to "Duplate Corporation") and each owning 50 per cent. of the capital stock of the new company.

Duplate Corporation, with knowledge of the patent in suit, then proceeded to manufacture laminated glass. The defendant company likewise made use of gelatin as an adhesive, and was thereupon advised by plaintiff's patent attorney that it (defendant) was considered by plaintiff as infringing the latter's patent. Defendant consulted its

own patent attorney, who thereupon advised plaintiff that defendant was not dehydrating its gelatin by means of a dehydrating agent, but that the gelatin used by defendant was dried merely by exposure to the air and that there was no heat, or other means, used to dry the gelatin after it was spread on the glass. Defendant then asked for and obtained a meeting with representatives of the plaintiff, as a result of which defendant continued to maintain that it was not infringing plaintiff's patent, while plaintiff took the contrary position.

On or about December 31, 1928, plaintiff filed its bill of complaint against the defendant, Duplate Corporation. Defendant filed its answer, the case came on to be heard before the Honorable F. P. Schoonmaker, United States District Judge for the Western District of Pennsylvania, and an interlocutory decree was entered on December 9, 1929, adjudging the patent in suit to be valid and infringed by the defendant. Defendant appealed to the Circuit Court of Appeals for the Third Circuit where the decree was in all respects confirmed.

[fol. 1003] In the District Court the proof showed that ordinary commercial gelatin has a normal moisture content from 10 per cent. to 13 per cent., that the moisture content of defendant's product was from 5.3 per cent. to 10.9 per cent., and that the moisture content of the plaintiff's product was from 7 per cent. to 10 per cent. The District Court found as a fact that the defendant reduced the moisture content below the normal moisture content of gelatin and also that an air dryer is a dehydrating agent.

It appears to the Master that there was an honest difference of opinion between patent counsel representing the defendant and patent counsel representing the plaintiff as to whether the patent in suit was actually infringed. It was subsequently determined by the District Court and affirmed by the Circuit Court of Appeals that the patent was infringed. After a thorough review of the evidence, however, the Master is not of the opinion that the defendant was a conscious and deliberate infringer.

I. The Defendant's Profits

A. Defendant's Original Statement of Account

Pursuant to his appointment, the Master ordered Duplate Corporation to produce in the form prescribed by Equity

Rule No. 63 a duly authenticated statement of account of its manufacture and sale of infringing Duplate, which account was produced and is in evidence under the title "Defendant's Original Statement of Account." From the Profit-Loss sheet of this account, it appears that the defendant claims to have suffered a total loss during the accounting period, from its manufacture and sale of infringing Duplate, of $1,016,945.49. It was subsequently admitted by the Defendant that there were included in the original statement of account certain sums not properly chargable [fol. 1004] against receipts from sales, these items being as follows—

(1) A charge of $60,000.00 for Interest on Investment in the year 1928. Inasmuch as the capital stock of the company was paid in installments during the year 1928, whereas interest had been charged on the entire $1,000,000.00 of capital for the entire year, it was agreed by the defendant that the overcharge on this account amounted to $35,000.00.

(2) Under Experimental Expense the defendant agrees that a number of items charged therein were not properly chargeable to cost of operation. As analyzed in Defendant's Exhibit K, the items therein which should now be excluded amounted to $3,733.31 in 1928; $13,650.73 in 1929 and $24,905.19 in 1930, or a total of $42,289.23.

(3) Donations totalling $11,250.00 to a fellowship in the Mellon Institute should, the defendant agrees, likewise be eliminated from operating cost.

(4) Items carried as "Miscellaneous" under the title "Administrative" and as sub-itemized on the third sheet of the details accompanying the Profit and Loss statement, should be eliminated to the following extent:

E. I. du Pont, attorneys' fees $385.57; Attorneys' fees Triplex suit, $6,805.88 in 1929 and $2,499.75 in 1930; Legal expense—Casein $452.00; Legal expense—foreign patents, $1,612.08, or a total of $11,755.28.

(5) Under "Salaries" additional charges totalling $8,678.92 should likewise be eliminated, being made up as follows:

[fol. 1005] E. I. du Pont, attorney, $1,837.10; and Patent Department $2,111.43 in 1928, $4,069.24 in 1929, and $661.15

in 1930. Plaintiff admits that Triplex Suit and Patent Expense should total $16,788.82 instead of $20,434.20.

Deducting the sum of $108,973.43, being the total of the items eliminated from cost as set forth above from the total claimed loss of $1,016,945.49, leaves an adjusted claimed loss of $907,972.06, which, with Plaintiff's admission above referred to, becomes $911,617.44.

Defendant now claims, however, that two adjustments should be made the other way, namely—

(1) An allowance of $82,788.64, being arrived at by virtue of the fact that subsequent to the termination of the accounting period, Duplate Corporation was compelled to accept actual returns of infringing Duplate sold during the accounting period at $83,561,42 (Defendant's Exhibit W), less $772.78 salvage of reclaimed glass.

(2) During the accounting period Duplate was sold under a time guarantee authorizing replacements of defective material at the expense of Duplate Corporation for a period varying from fifteen months to two years, and which replacements after the end of the accounting period amounted in value to $72,060.42 (Defendant's Exhibit X). The sum of these two additional claimed losses amounts to $154,849.06, which when added to the above adjusted loss figure $911,617.44, leaves an ultimate total claimed loss to the Duplate Corporation upon its infringing business amounting to $1,066,466.50. The propriety of these latter two items will be considered subsequently.

[fol. 1006] B. Exhibits 9 and 9-A

Counsel for the Plaintiff duly filed exceptions to the Original Statement of Account, and it was subsequently agreed between the parties that the accounting firm of Lybrand, Ross Brothers and Montgomery should make an examination of the books and records of the defendant and state an account in accordance with instructions from Counsel for the plaintiff. This new account was introduced into evidence as "Plaintiff's Master's Exhibits 9 and 9-A" and which account was "tied in" with both the "Original Statement of Account" and the books of the defendant. Exhibits 9 and 9-A exclude from cost the items of expense not properly chargeable to receipts from sales as mentioned above, and also exclude several consider-

ably larger items from the computation under the instructions of Counsel for the Plaintiff. These latter items are designated as "Contested items of Cost and Expense Eliminated." The propriety of eliminating all or any part of these contested items from cost and expense constitutes one of the major problems before the Master, and which will be considered subsequently.

C. The Interlocutory Decree of December 5, 1931, as Relating to the Cost of One-Eighth Inch Plate Glass.

During the period within which the Master was conducting hearings on the exceptions filed by Counsel for the plaintiff to the "Defendant's Original Statement of Account," and subsequent to the introduction into evidence of "Plaintiff's Master's Exhibits 9 and 9-A," Counsel for the plaintiff filed a "Supplemental Bill of Complaint" against Pittsburgh Plate Glass Company and Duplate Corporation as hereinabove referred to, alleging, inter-alia, that Pittsburgh Plate Glass Company and Duplate Corporation were not in fact or in law separate [fol. 1007] entities, but that the Duplate Corporation was in fact and in law the alter ego of Pittsburgh Plate Glass Company, and praying that the Pittsburgh Plate Glass Company be adjudged responsible for the acts and doings of the Duplate Corporation as well as its own acts, this Supplemental Bill of Complaint being before the Master as "Plaintiff's Master's Exhibit No. 29."

The Pittsburgh Plate Glass Company consenting thereto, the Interlocutory Decree dated December 5, 1931, as set forth above, was duly entered.

In Defendant's "Original Statement of Account" and likewise in "Plaintiff's Master's Exhibits 9 and 9-A," the defendant, Duplate Corporation, was credited with the market price of the ⅛-inch plate glass manufactured by Pittsburgh Plate Glass Company, not then a defendant, and used by Duplate Corporation in manufacturing non-shatterable glass in infringement of the patent in suit.

Basing their argument upon the Interlocutory Decree of December 5, 1931, Counsel for the plaintiff requested the Master to order the then defendant, Pittsburgh Plate Glass Company, to file an account showing the cost to Pittsburgh Plate Glass Company of the plate glass which went into the infringing structure.

After having heard arguments by Counsel for both parties, and having examined briefs submitted by them, the Master in a written opinion, which appears in the Master's record at pages 745 to 760, and which is attached hereto as "Appendix A" ordered the Pittsburgh Plate Glass Company to file an account showing the costs to it of the plate glass which went into the infringing structure.

Counsel for the defendant then brought this question before your Honorable Court, and after having listened to argument and examination of the briefs filed, the Court [fol. 1008] refused to overrule the Master's decision, without prejudice, however, to the defendant's right to again raise the question upon the Master having filed his final report.

Counsel for defendants in their Brief before the Master on Accounting enumerate "what we believe to be the more fundamental errors in the Master's Opinion, and a reference to subsequent testimony, which, to us, demonstrates that the ruling shall now be rescinded." Inasmuch as the proper determination of this question is so vital, the Master has reconsidered his previous opinion in the light of subsequent developments.

Of the eight items comprising this portion of the brief of Counsel for the defendant, the first three were considered previously, i. e.,

(1) That the claim to Plate Glass profits is an afterthought.

(2) That neither the supplemental bill nor its prayers, nor the consent decree premised thereon, concern the manufacture of plate glass, nor the accountability of Pittsburgh Plate Glass Company for any profit arising therefrom, and

(3) That the Master's ruling must be predicated upon the disregarding of the corporate entity of Duplate Corporation.

After having thoroughly reconsidered these three arguments, the Master remains of the opinion as expressel previously.

In addition to the arguments previously considered as mentioned above, Counsel for the defendant also argues—

(1) That testimony subsequently introduced to the effect that Pittsburgh Plate Glass Company would have sold [fol. 1009] plate glass to the automobile industry for the same purpose and in almost all instances had the sale of laminated glass not been made by Duplate Corporation, requires the Master to reverse his previous opinion.

(2) That insofar as the opinion of the Master is based upon an assumption that the defendants went into the laminated glass business to save the plate glass market of the Pittsburgh Plate Glass Company, it is in error.

(3) That insofar as the Master's opinion may have been predicated upon the belief that Pittsburgh Plate Glass Company was selling plate glass at a profit "while taking a voluntary loss on the sale of the completed product" it is in error.

(4) That Pittsburgh Plate Glass Company manufactures plate glass under a great variety of patents to which the plaintiff has no claim, and

(5) That the owner of a patent is not entitled to recover profits resulting only indirectly from an infringement.

The Master is of the opinion that these arguments do not call for the application of the rule of law as advocated by Counsel for the defendants. At the time this question was considered by him he was and still is of the opinion that, on the facts involved and the practicability and reasonableness of the result, the rule of law set forth in Armstrong v. Belding Bros., 297 Fed. 728, should be applied to this case.

Counsel for the defendants continue in their brief that if the Master should finally rule that the cost to manufacture ⅛-inch plate glass is to be used as a base, a further question arises as to how that cost should be measured, pointing out that the cost of plate glass is summarized under five items (Record page 643) including—

[fol. 1010] (1) Manufacturing and administration;

(2) Interest on investment, 6%;

(3) Allowance for use of patented process and apparatus;

(4) Federal income tax, and

(5) Loss, cutting.

Counsel for the plaintiff concedes the correctness of the first two items, but challenges the last three, which will now be considered in order.

(3) Allowance for use of patent process and apparatus.

This claim is based upon the fact that Pittsburgh Plate Glass Company made its ⅛-inch plate glass by processes involving twenty-six important patents and some lesser ones, which patents resulted in savings over the unpatented process of approximately 12c a square foot in 1928, 9c in 1929 and 9c in the first five months of 1930, as more accurately shown in the account. The operation used by the defendant was known as the "continuous process." The alleged saving is figured by comparing costs of manufacture under the process involving these patents as used at Creighton with the old process as used at Kokomo, Indiana, and Crystal City, Missouri, during the same period, and all three being modern and up-to-date in every respect. Counsel for the plaintiff objects to an allowance for the use of patented process on the grounds that the comparison of costs at the Kokomo and Crystal City plants with those at Creighton is not a proper comparison; and that the patents in question are for details of construction rather than the process itself. The fact remains, however, that the use of these twenty-six patents, which were owned by Pittsburgh Plate Glass Company, and presumably purchased or developed by them at their own expense, re- [fol. 1011] flected itself in the cost to Pittsburgh Plate Glass Company of manufacturing ⅛-inch plate glass, and to which patents plaintiff has no claim. The Master is of the opinion that the claim is proper and that this feature of the elements of cost entering into the manufacture of ⅛-inch plate glass should be allowed. Mason v. Graham, 23 Wall. 261; Tilgham v. Proctor, 125 U. S. 136, 151.

(4) Federal income tax.

This item as it appears in the account (Record page 641) represents 2.267c per square foot in 1928, 2.194c in 1929 and 1.395c for the first five months of 1930. These computations were made by figuring the profit on thin

plate glass in a given year, computing the tax upon the said profit at the then prevailing rate, and dividing by the total sales of thin plate glass in that period. The items of "allowance for use of patented process and apparatus" and "interest on investment" were not taken as income tax deductions in the computation of income, the tax as computed, therefore, representing money actually paid. Although deduction for Federal income tax has been denied to a deliberate infringer, L. P. Larson, Jr. Co. v. William Wrigley, Jr. Company, 277 U. S. 97, it has long since been established that money actually paid as Federal income tax is a proper item of expense in a patent accounting. MacBeth Evans Glass Co. v. L. E. Smith Glass Co., 23 F. 2d 459, 463; Christensen v. National Brake & Electric Co., 10 F. 2d 856, 861-862.

Plaintiff further argues that the defendant has failed to claim or prove any specific amount to be deducted from profits as an allowance for Federal income tax and has failed to prove facts from which the Master can compute what, if any, deductions from profits he should allow because of the defendant's payment of Federal income taxes. Plaintiff also argues that defendant has not shown that [fol. 1012] these taxes were actually paid and no claim for refund is pending.

It having been understood that the accounting of plate glass profits should be put in the form in which it was actually cast (Record, page 643), with plaintiff being given the right to examine the Plate Glass Company's books, and as it chose to do, the first objection quoted above cannot be sustained, as the basis upon which the tax is figured appears to be a reasonable one. The Master is satisfied that the taxes as testified to by Mr. McHenry (653) were actually paid, that no claim for refund is pending, and that this feature of the defendant's expense cannot be satisfactorily taken care of in any of the various methods suggested by Counsel for the plaintiff.

The Master, therefore, approves the claim for allowance made by the defendant, Pittsburgh Plate Glass Company, for Federal income tax in computing the cost to it of manufacturing ⅛-inch plate glass.

(5) Loss, cutting.

This claim arises from the adjustment which defendant claims to be necessary in order to translate the av-

erage cost of ⅛-inch plate glass for each year in the accounting period into the specific cost to the Plate Glass Company in manufacturing the ⅛-inch plate glass sold to Duplate Corporation. The nature of this special loss is well stated in the testimony of Mr. Higgins (Record, pages 800-801). The most expensive order which a glass company has to execute is an order calling for a large quantity of glass in one size. If the glass company can sell pieces of glass of various sizes, the cutter can cut around the flaws existing in the original sheet and still enable the company to dispose of various pieces resulting therefrom without any material cutting loss. Where, however, the order calls for large quantities of glass in one size, the result is the accumulation of a large and slow [fol. 1013] moving inventory of glass in comparatively small sizes. Mr. Higgins testified as to the selling prices of these smaller piece of glass, contrasting the same with the average selling price for all plate glass. This special cutting loss reduced the profit per square foot on such sales by approximately 1½c in 1928 and 1929 and by approximately 2½c the first five months of 1930, these figures being arrived at by determining the aggregate sum lost per square foot and applying the same to the actual sales in sheet made to Duplate Corporation (Record, pages 649-650). Under these circumstances, therefore, the Master is of the opinion that loss cutting as hereinabove defined should be considered as a part of the manufacturing cost of ⅛-inch plate glass sold by Pittsburgh Plate Glass Company to Duplate Corporation.

In determining profits, if any, resulting from the infringement of the Letters Patent in suit, therefore, the Master is of the opinion that the cost to the Pittsburgh Plate Glass Company to manufacture the ⅛-inch plate glass entering into the infringing product should be used, and that that cost should be determined by including as elements entering into that cost the items set forth above.

D. Contested Items of Cost and Expense

As herein above referred to, Plaintiff's Master's Exhibits 9 and 9-A were prepared by Lybrand, Ross Bros. & Montgomery who, in accordance with instructions of Counsel for the plaintiff, eliminated certain items of cost and expense from their computations of alleged profits accruing to defendant.

These "contested items" (i. e., those which plaintiff argues should and defendant argues should not be eliminated) may be considered under the following headings:

[fol. 1014] (1) Selling commissions paid to Pittsburgh Plate Glass Company;

(2) Factory operating losses;

(3) Cost of defective product returned during account period;

(4) Cost of defective product returned after accounting period;

(5) Experimental account;

(6) Extraordinary expense.

Some of the above categories require further subdivision, but will now be considered seriatim.

(1) Selling Commissions Paid to Pittsburgh Plate Glass Company

The "Original Statement of Account" included as "Selling Expenses," commissions, costs of packing and shipping, and advertising. Plaintiff's objection goes to the first item only, namely, "Commissions." The plaintiff argues that these commissions, being at the rate of 5% on sales to January 1, 1929, and at 3% thereafter, are entirely improper in some instances and excessive in others. The amount claimed by the defendant Duplate Corporation under this heading is $220,742.95, but, "if Pittsburgh Plate Glass Company is held to account for its profits," then the larger sum of $539,145.98 is claimed.

The defendant, Pittsburgh Plate Glass Company, operated its warehouses as a broker in effecting the larger part of its sales and as a jobber in effecting others, that is, in most instances the warehouses simply took the order and transmitted it to the general offices of the company, while in other instances the warehouses actually received and sold the product. The plaintiff maintains that no commission should be charged on the latter, alleging that [fol. 1015] the sales were at a price sufficient to cover the expenses of the said sales and to reflect a profit. The Master is unable to agree with this contention for the

reason that there is no testimony upon which such a finding of fact might be based. As to commissions on sales made by warehouses in the nature of brokerage transactions, the Master is satisfied that the commissions charged and paid were fair and reasonable and the amount ordinarily charged for like services, and particularly so in view of the fact that these commissions secured the services not of a broker, but of a veteran sales organization with favorable contacts in and a real knowledge of the automobile industry.

The Master can find no justification for the larger claim of $539,145.98 set forth above, however, and refuses to allow the same.

(2) Factory Operating Losses

These alleged losses were divided in the account among various departments, and will be so considered here. The defendant's position is that since these losses occurred concurrently with and as an essential part of producing salable Duplate they are properly chargeable as a part of the expense of producing the Duplate which was actually sold. The plaintiff's position is that these losses were excessive, are improperly computed, and that such losses should be deducted from the profits on profit-making sales only. The manner in which these alleged losses arose will first be considered:

(a) Cutting Department.—The testimony is that plate glass is sold only in brackets measured in inches of even numbers, as eighteen by thirty inches, while, according to the custom of the trade, the customer is charged for the plate glass bracket next larger in both dimensions to the dimensions of the finished product. In those instances [fol. 1016] where the margin of safety was quite close, the bracket actually used might be two sizes larger than the dimensions of the finished product but the customer would be charged for the first larger bracket only. The difference between the size of the finished product and that of the first larger bracket is not a cutting loss, as the customer pays for the larger bracket, but in the second situation cited above, the difference between the bracket first larger to the finished product and the bracket two sizes larger than the finished product is a cutting loss, as the

customer pays for only the smaller of the two larger brackets.

(b) Transportation.—After the sheets left the cutting department, they were transported to the assembling department by being piled upon A-racks, and carried on trucks. The jostling received in transit, not only on account of actual breakage but also on account of the fact that dirt and particles of sand often settled down between the sheets, caused losses. Certain orders called for extremely sharp corners, and the defendant suffered large losses by the chipping of these corners. Counsel for the plaintiffs endeavored to indicate that losses of this nature were in excess of those which might reasonably be expected, and were an indication of a wanton carelessness on the part of the defendants. With this contention, however, the Master is unable to agree. In determining actual profits the question is not what the losses might have been, nor what losses were necessary, but rather what the defendant's losses actually were.

(c) The Assembling Department.—The transportation above referred to brought the sheets from the cutting room to the assembling department, where they were laid in pairs on a conveyor, rubbed with pumice and water upon the upper faces, carried under a blast of warm air to dry [fol. 1017] the pumice, and then under brushes by means of which the dry pumice was brushed off and carried away through a hood. The glass sheets were then passed through a slot in the wall of a room in which were three swinging spray guns, by means of which the gelatin solution (pyralin) was sprayed in a very thin film on the upper face of each of the glass plates.

The glass plates were then passed under a warm air dryer to the place of assembly, where they were laid together with an interposed sheet of pyralin. The assembled sandwich then passed through a slot in the opposite wall of the room to a point where the inspectors examined it for dirt and defects and then bound the plates and pyralin together by means of gummed paper slips applied at intervals around the sandwich.

Grit and dust frequently clung to the pyralin, which would result in a defect which the automobile people would not accept, and, although all precautions were alleged to

have been taken, the finished product was not always free from dirt and many rejections were caused thereby. This condition was particularly acute in view of the fact that a sheet of pyralin is charged with static electricity which attracts loose particles from the atmosphere to its surface. Although a separate room was built in which the air was filtered and the employees were required to wear uniforms, these contaminating influences frequently caused rejects and defects which were later caught by the inspectors.

(d) The Pressing Department.—The larger proportion of the alleged factory operating losses were suffered in the pressing department, partially because of operating difficulties and also because defects not discernible earlier in the process would assert themselves in the final pressing operation.

In the early stages of the infringement, the defendants, after comparing the merits of the platen press and auto-
[fol. 1018] clave processes, determined upon the latter. By means of the autoclave process the individual sandwiches were wrapped in cloths and sealed in rubber bags of suitable size. These rubber bags, after having been sealed by means of clamps, were evacuated of all air and gaseous content. These bags were then placed in the autoclave, which itself was sealed and filled with hot water pumped into it under pressure and circulated until the water was of a temperature of about 250° and under a pressure of about 150 lbs. per square inch. The pressure was gradually released, cold water pumped in to replace the hot water, the bags taken out, opened, and the pressed sandwich removed therefrom.

Many rejections of finished Duplate resulted from the operations of this department, and particularly on account of "Let-goes" and "Separation." These "Let-goes" were caused by excessive strain put upon the edges of the sandwiches in the bags, causing them to bend to a small degree and, after the pressure had been released, straightening out again and thus leaving a small channel around the edge of the Duplate into which water and moisture would seep. Automobile manufacturers refused to accept glass sheets which had "Let-goes" and required replacements of any sandwiches in which "Let-goes" subsequently made themselves apparent. Although these "Let-goes" might only by one-eighth of an inch in extent, they would eventually

grow in service so that they sometimes grew up into the center of the plate.

In the usual stages the autoclave operation took approximately forty-five minutes, but after a liquid known as carbitol was introduced in place of the water, the defendants were able to shorten this operation to approximately eight minutes, and eventually the defendants perfected a process which enabled them to do without the rubber bags, and, since January 1, 1930, this advanced process has been used for pressing about 99.9 per cent. of the Duplate product.

[fol. 1019] (e) The Edging Department.—Edging presented further difficulties in view of the fact that the product being made up of two pieces of glass approximately one-eighth of an inch thick was quite subject to chipping, and the presence of celluloid between the two pieces further complicated the operation. Subsequently a scheme was devised by which the two corners were rounded, but the bottom face was not touched, and which, while presenting the appearance of having been ground and polished, had not actually been thus treated.

(f) Pyralin Losses.—There were two claims for pyralin losses set forth by defendant:

1. Excessive losses in cutting due to the defendant having been unable at all times to obtain pyralin sheets of a size that could be cut economically, and

2. Defects in the pyralin which, while unrecognized or undiscovered until put to this use, rendered the finished product unfit for use in laminated glass in automobile windshields, such as scum, haze, smudge, etc.

Discussion as to Law of Factory Operating Losses

Counsel for the plaintiff instructed Lybrand, Ross Bros. & Montgomery, in preparing Exhibits 9 and 9-A, to eliminate from the alleged "cost of sales" the factory operating losses which have been discussed above. Counsel for the defendants maintain that all of these losses were incurred concurrently with and as essential parts of the operations resulting in the production of Duplate, and that all factory costs are inseparable as between the production of a good

product on the one hand and the production of a defective product on the other hand.

Counsel for plaintiff likewise points out that, as a general rule, when a part of an infringement results in profits and a part in losses, the complainant is entitled to recover the [fol. 1020] profits without deduction on account of the losses, as each infringement is treated by itself. As pointed out by Judge Thompson in MacBeth Evans Glass Company v. L. E. Smith Glass Company, 21 Fed. (2d) 553 at 554, however:

"But losses occurring concurrently with the gaining of profits should be taken into account, if they resulted from the particular transaction on which the profits are allowed. In other words, though called losses, they are really diminutions, which are taken into account in reaching the resultant profits of the sales on which profits were made."

The Master is satisfied from the evidence that a considerable amount of the finished product had to be turned out only to be rejected or returned in order that a certain volume of perfect specimens might be sold. It was also established by the evidence that even the Ford Motor Company, in making laminated glass under its agreement with the plaintiff, was required to produce five million windshields in order to obtain four million good ones,—and it appears as self-evident to the Master that in the case of Ford, as in the case at bar, the cost of producing the good ones necessarily included the cost of producing the million bad ones, but for which the good ones could not have been produced.

The Circuit Court of Appeals in Continuous Glass Press Company v. Schmertz Wire Glass Company, 219 Fed. 199, stated, at page 203—

"If a part was waste, the cost of making the waste should not be deducted from the cost of making the whole, for the cost of producing waste was an ingredient in the cost of producing the resultant finished product, to the benefit of a credit for which, as against the profits to be charged to it, the defendant is entitled."

[fol. 1021] The records of the defendant as to "Factory Operating Losses" above mentioned appear to be full and complete, and the testimony of Messrs. Clause and Sherts

as to the details of the various operations have convinced the Master that the large operating losses which occurred were unavoidably concomitant with the manufacture of the good finished product and were necessary elements in the cost of the production of the good product and are, therefore, allowed as claimed.

(3) Cost of Defective Products Returned

As explained above, certain Duplate which was not found defective in the factory subsequently developed defects and the product was returned by the customer for that reason. Exhibits 9 and 9-A show the selling value of the Duplate returned during the account period as amounting to $812,770.93, the cost of manufacture of which amounted to $631,280.83. At page 15 of Exhibit 9-A the Accountants subtracted the difference between the selling price and the cost of the returned product from the total alleged profits, making, however, no allowance to the defendant for the cost of manufacture of these returned defectives. And on page 5 of Plaintiff's Exhibit 9, it appears that the so-called average cost of sales per foot of Duplate was computed without regard to the "Cost of Return Sales, 32,824-10 feet." Defendant claims that the cost of returned defective Duplate ($631,280.83) should have been included in the computation of Cost of Sales.

The Master is of the opinion that cost of defective Duplate returned during the accounting period stands upon the same footing as the cost of Duplate found defective in the various stages of its manufacture or finished Duplate rejected before it was sent out to the customers, and that the entire cost of manufacture must be credited to the de- [fol. 1022] fendant as an essential part of the cost of the manufacture of the good product actually sold.

Duplate Corporation made some effort to obtain at least some salvage from its defective Duplate, both as to that which never left the factory and that which was returned by the customers. Originally an effort was made to separate by boiling and thus recover the sheets of plate glass. This was discontinued in view of the fact that the glass was damaged thereby. Subsequently a further effort was made to separate the glass under pressure instead of in a tank, where the results justified the cost of separating. Still a

third method was by cutting down defective Duplate in smaller sizes where it was thought a substantial recovery could be obtained. In none of these efforts was the defendant's success very marked. Whatever salvage was again sold, however, was accounted for by the defendant. The cost of making a defective piece was charged to the cost of manufacture, but when the piece was cut down and sold again, it was put back into the product at a cost equal only to the cost of cutting it down, and whatever was received for it went into receipts from sales.

The Master is therefore of the opinion that the defendant is entitled to charge the cost of the defective product returned during the accounting period as part of its manufacturing cost in this accounting.

(4) Returns After the Accounting Period

After the accounting period approximately 50,000 feet at a net billing price of $83,561.42 were returned. Plaintiff contends that the defendant should not be allowed a deduction for the glass thus listed in Defendant's Exhibit W. The Master is of the opinion that returns subsequent to the accounting period stand upon the same footing as those [fol. 1023] made during the accounting period as discussed above, the same reasoning being applied in both cases.

A further question is the manner in which these returns should be handled in the account in order to obtain a proper cost to be subtracted from the billing price. Inasmuch as the returns were received subsequent to the accounting period no cost is at hand for the months in which the returns were actually received. The Master is of the opinion that the average monthly costs for May 1930 (the last month of the accounting period) multiplied by the feetage to obtain the cost of the glass, and then this result to be deducted from the billing price of $83,561.42, is the proper procedure to be followed.

(5) Experimental Expense

Mr. Sherts testified that this account was set up in order that the defendant might ascertain what the actual production cost would be exclusive of expenses of a temporary nature which would not occur after the development had

progressed to a thoroughly operating standpoint. An item which appears in the statement for 1929, for example, and amounting to over $18,000.00, was explained by Sherts as covering the salary and office help of technical men employed for the purpose of more quickly overcoming the problems of a production nature which were developing, these men actually doing the work which would have been done by regular production supervision had a proper organization been developed. Following explanations of this character, Mr. Sherts identified defendant's Exhibit K as distinguishing that portion of the so-called experimental account which was actually experimental, and that portion which, in his opinion, should properly be classified as belonging to cost of production, this calculation resulting in a total of $143,271.73 being allotted $100,982.50 to operation [fol. 1024] and $42,289.23 as experimental. As to the $42,289.23 which the defendant admits to be experimental, no deduction can be made even by way of including it in manufacturing expense or otherwise, unless it is shown that these expenses were incurred on account of the infringing product. Crosby Valve Co. v. Consolidated Valve Co., 141 U. S. 441; Computing Scale Co. v. Toledo Computing Scale Co., 279 Fed. 648, etc.

The question thus presented to the Master is whether the defendant has properly shown that the major portion of the experimental expenses, as set forth on the books of the company, are not, in fact, experimental expenses at all, but rather operating expenses. The mere fact that the label "Experimental Expenses" was used by the defendant does not of itself necessarily exclude a claim by the defendant on that account, the all important consideration being the facts behind the name rather than the name itself.

Counsel for the plaintiff maintains that the defendant's label should be conclusive, and also criticizes the allocation of certain specific sums to production costs, these sums totaling slightly less than $7500.00. After having analyzed the various objections as raised by counsel for the plaintiff, and in consideration of the testimony both on direct and cross-examination with respect thereto, the Master accepts the testimony of Mr. Sherts that his division as set forth in Exhibit K is substantially correct, and allows the sum of $98,312.71 (Lybrand, Ross Bros. & Montgomery figures) of

the so-called "Experimental Account" to be included in the cost of producing the infringing Duplate.

(6) Extraordinary Expense

In the "Original Statement of Account" defendant included expenditures in the sum of $21,278.30 as the cost of [fol. 1025] dismantling and moving equipment in the years 1929 and 1930. Lybrand, Ross Bros. & Montgomery, under instruction of plaintiff's Counsel, omitted this item (corrected to $21,273.83) from their computations. The witnesses for the defendant testified that in 1929 they moved from their old factory to a new factory in the hope of correcting certain difficulties which they were experiencing in the old plant. Subsequently they again moved back to the old plant because of dissatisfaction with the new, and for a time operated both factories simultaneously, eventually discontinuing all work in the new plant while additional alterations were being made therein, and then moving back into the new factory after these conditions had been corrected.

The Master agrees that this item of actual expense represents an operating cost which should be included in the computation of profits accruing to the defendant, if any.

(7) The Comparison of Average Costs and Specific Selling Prices

Lybrand, Ross Bros. & Montgomery, in computing Exhibits 9 and 9-A allocated overhead to specific sales units for the purpose of determining the profitable sales. The figures upon which this exhibit was drawn up, of course, were taken from the books of the defendant company. In using these figures as a base, Lybrand, Ross Bros. & Montgomery, under instructions of plaintiff's Counsel, proceeded to divide sales into two categories, namely, sales made at a profit and sales made at a loss. Counsel for the plaintiff then argued that in computing profits no deductions can be made for losses incurred in loss-producing sales as thus shown by way of reducing the profits made on profit-making sales.

It is a fundamental rule of patent accounting procedure that where the infringement of a product claim is being ac- [fol. 1026] counting for each sale constitutes a separate

infringement, and the profits derived from each sale must be accounted for and turned over to the plaintiff. If some sales result in losses the defendant must bear these losses itself and may not offset the loss-incurring sales against the profitable sales.

The question now before the Master, however, is how these profits and losses should be computed. Counsel for the plaintiff argues that in this particular case, at least, the proper method is to compare average costs with specific selling prices, justifying that argument upon the basis that—

(1) The defendant used this method in its own books in figuring its cost.

(2) This method has the approval of authorized accounting authorities.

(3) It is the only method by which due effect may be given to the fundamental principle of patent accounting as set forth above, and

(4) That it is the only method short of mathematical precision (which is not necessary in any case) by which substantial justice may be done between the parties to this case.

In this particular instance, however, average costs do not reflect specific costs for many reasons, among them the following:

(1) All production does not cost the same per foot in any given month due to difference in cost of glass on account of size, bracket and quality, and in cost of pyralin because of finish and size of sheet.

(2) Cutting losses of different brackets of glass are not equal nor are losses in operation equal.

[fol. 1027] (3) Edge work was performed on some sales and not on others, causing a considerable spread in cost of manufacturing.

(4) The cost of an order for one thousand windshields is much less per light than the cost of an order for ten windshields, because, regardless of the size of the order, a template must be made and can be used for a thousand lights as well as ten.

The method sought to be applied by the plaintiff is unsound for the further reason that items of overhead such as taxes, insurance, general office expense and the like are spread equally over all the product manufactured during any given period, while prices are quoted, business done and profits made on quite a different basis. Once items of overhead have been absorbed, the manufacturer is in a position to add to his net profits by taking business at any figure above his direct cost, ignoring overhead entirely.

Counsel for the defendants cite an example of a round trip ticket to Washington, D. C. on certain trains for $4.00. While the railroad could not haul all passengers at this rate, as soon as the regular freight and passenger business has absorbed its entire overhead and indirect expense this excursion business can be and is properly carried on at something above the railroad's out-of-pocket expense and without the allocation to this specific business of any overhead at all, and such a practice increases the net profits of the railroads.

Counsel for the defendants cites Christensen v. National Brake & Electric Co., 10 F. (2d) 856, 867, et seq.

Counsel for the plaintiff attempts to distinguish the case above cited by arguing that Judge Geiger in that case was discussing a situation wherein the proof showed that the infringing defendant was honestly endeavoring to make [fol. 1028] profits by making overhead, while in the case at bar there is no proof that the defendant here was making any endeavor to make profit by making overhead. The Master agrees with Counsel for the plaintiffs to the extent of his argument wherein he states that there is no evidence that the defendant here was endeavoring to make profit by making overhead, nor does the Master believe that the Christensen case stands for a general proposition that average costs and specific selling prices may never be compared.

In view of the fact, however, that in the case at bar production costs vary materially with different orders due not only to peculiar or difficult sizes and shapes of lights for windshields or windows, but also to edge work, templates, etc., the Master is of the opinion that the ruling of Judge Geiger in the case above cited rules the case at bar, and that the fact that the defendant's own books computed costs on an average basis does not justify the subtraction of an average cost from a specific selling price, in order to deter-

mine whether a given transaction was a loss-producing or profit-making one.

Counsel for the plaintiff in his reply brief calls to the Master's attention the method illustrated in Klooster on Patent Accounting at page 271, wherein all overhead is allocated to the profitable sales leaving the unprofitable sales to bear none of the overhead. The Master is of the opinion that this method of computation is invalid for the same reasons as mentioned above, and that in the case at bar no equitable method of determining what specific sales were made at a profit and what at a loss, if any, in either case, has been suggested, nor is the Master himself acquainted with any other method, the application of which would be equitable in the case at bar, as a consequence whereof no comparison is to be made herein between average costs and specific selling prices.

[fol. 1029] (8) Additional Claim of Plaintiff as to Pyralin Losses

On October 4, 1932, Counsel for the defendant put into the evidence Exhibit "Q" being a recapitulation of pyralin losses from May 1929 to May 1930. A portion of these losses is set forth in feet and a portion in sheets. On November 2, 1932, defendant introduced Exhibit "Q 1", which computes losses in sheets in the terms of feetage, and these two exhibits, when taken together, disclose that between May of 1929 and May of 1930 inclusive the total pyralin losses in square feet was 418,493.

Comparing Exhibits "Q", "Q 1" and "R" as well as Plaintiff's Exhibit 10, we find that the total in operating losses both before and after assembly during the accounting period totaled 2,947,785 square feet. Of this latter amount 1,047,526 square feet represented losses after assembly and 1,900,258 represented losses before assembly.

The difference between 1,900,258 and 418,493 square feet, or 1,481,765 square feet represents all losses in pyralin prior to assembly up to May, 1929.

According to Exhibit "Q" these 418,493 square feet represented value of $84,182.11 or at the rate of $.2012 per foot. Applying this average price per square foot to the pyralin losses prior to assembly up to May, 1929, to-wit, 1,481,765 square feet, we find that the dollar value of these losses

was $298,131.12, which is included in the cost of material used in the Assembling Department during this period.

As heretofore pointed out, Counsel for the plaintiff maintains that, as a matter of law, the defendant is only entitled to the cost of the pyralin used in making the profitable sales plus whatever cutting losses it might have suffered in manufacturing the glass which resulted in the profitable sales.

Although the Master is of the opinion that the profitable sales cannot be separated from the non-profitable sales in [fol. 1030] this manner, as more thoroughly discussed above, he deems it advisable to show this additional claim of the plaintiff in the account. Counsel for the plaintiff contends that 73.47% of defendant's total sales represent profitable sales so that, on plaintiff's theory of the case, plaintiff would be entitled to a credit of 73.47% of $298,131.12 or $219,036.93, which amount is accordingly set forth in the account under the heading "Additional pyralin losses" which the Master has refused to exclude from cost of sales, but which, under the plaintiff's theory of the case, should be excluded.

Upon recalculating the defendant's alleged profits in accordance with the foregoing, and using the figures for individual items as set forth in Exhibits 9 and 9-A, it appears that defendant instead of operating at a profit during the accounting period, operated at a net loss of $276,857.47, as appears by a calculation attached hereto and marked "Appendix C."

II. The Plaintiff's Damages

Having disposed of the matter of the defendant's profits, the next question is as to the plaintiff's damages. The plaintiff claims that damages resulted to it from forced reduction in its selling prices caused by the alleged cut-price competition of the defendant, and also introduces general evidence tending to show that it has been damaged and opinion evidence tending to establish, along with the other evidence, a basis for a reasonable royalty.

Established Royalty.—Although the plaintiff was in existence five years prior to the termination of the accounting period, it had granted but two licenses in that time, one to the Johnston Glass Company and the other to the Ford Motor Company. As to the former, there is no satis-

factory evidence of sales under it. As to the latter, the [fol. 1031] Ford license involved a free license on half of the requirements of the Ford Motor Company and a so-called royalty which, in reality, covered a manufacturer's profit as well. Even if the two elements of the Ford license were to be divided, no established royalty would have been proved, as no market price could be determined upon the sale of but two licenses in five years. Rude v. Westcott, 130 U. S. 152, 165; Wallace & Tiernam Co. v. City of Syracuse, 45 F. (2d) 693; Dunkley Co. v. Central California Canneries, 7 F. (2d) 972, 976; 270 U. S. 646.

Sales Lost and Prices Reduced: For plaintiff to establish that it was damaged because of sales lost by it to Duplate Corporation, it would have been required to prove—

(a) That it had the manufacturing facilities, personnel and capital to handle the sales made by the Duplate Corporation as well as its own,

(b) That it would have made the sales had they not been made by Duplate Corporation, and

(c) That it would have made these sales at a proven amount of profit.

Walker on Patents, Vol. 1, Section 607.

As to the capacity of the plaintiff's factory, it was testified that at the end of 1927 and the beginning of 1928 the capacity of plaintiff's factory was about 1200 lights per day of twenty-four hours, the lights averaging about three square feet, or, on the basis of 300 working days in a year, approximately one million square feet capacity per year. Shortly after the beginning of 1928 it acquired a new factory and ordered 100 additional presses, thus increasing its production capacity to approximately 36,000 square feet per twenty-four-hour day or an annual production capacity [fol. 1032] of 10,800,000 square feet. By June of 1929 it again increased its production capacity to about 15,000 lights per day, so that its total capacity for 1929 was approximately 12,600,000 square feet, which capacity was maintained in the first five months of 1930. During this period, however, it produced about 50,000 square feet in 1927, 2,137,860 square feet in 1928, and 6,613,353 square feet in 1929. This surplus production capacity for the

entire period, therefore, was ample to take care of the sales made by the defendant, even though deduction for breakage, etc., were allowed.

The burden was upon the Plaintiff to establish that it would have made the sales had they not been made by the Duplate Corporation. Inasmuch as this feature is closely allied with defendant's proof as to losses on Triplex sales occasioned by reduced prices, it will be considered subsequently.

The Plaintiff failed to show at what profit it would have made sales alleged to have been lost to the defendant, which in itself is an insuperable obstacle in the way of awarding damages to the plaintiff measured by sales lost to defendant, as plaintiff admits.

Prices Reduced.—The claim of the plaintiff for losses on Triplex sales occasioned by reduced prices, however, stands upon an entirely different basis. Plaintiff's Exhibit 28 sets forth certain sales to distributors and sales to automobile and body manufacturers for standard and optional equipment. Tabulating the area, amount and selling price per square foot of actual sales and comparing these actual selling prices with the so-called established price, plaintiff claims that the difference between these two represents a loss to Triplex occasioned by reduced prices.

If the Master were able to find as a fact that the so-called "Triplex Established Price List" represented prices generally acceptable to the industry, plaintiff's calculation in Exhibit 28 might be used, but the Master is unable to so [fol. 1033] find, and particularly so in the light of the testimony of Mr. Fisher of the Fisher Body Corporation and Mr. Downey of Chrysler, both of whom stated that the plaintiff's price schedules would not have been generally accepted even had Duplate not been in the business. Inasmuch as alleged losses set forth in that portion of Exhibit 28 which deals with sales to distributors must be based upon an established price generally acceptable, the Master is unable to award any sum to the plaintiff on this account.

That portion of Exhibit 28 dealing with sales to automobile and body manufacturers, however, stands upon a different basis, inasmuch as the names of the purchasers are set forth in many instances and in some of these instances there is testimony to the effect that these particular purchasers had purchased from plaintiff prior to the in-

fringement and at specified prices, thus enabling the Master to find that the plaintiff suffered a loss represented by the difference between the prices thus shown to be acceptable to these respective automobile and body manufacturers as opposed to the prices forced upon plaintiff by the infringement. In the case of the Stutz contract for example, the contract itself called for sales of unsealed plate to Stutz at $2.25 and unsealed sheet at $1.45. The testimony shows that Stutz actually purchased sealed plate at $2.55 and sealed sheet at $1.55. In May of 1929 plaintiff was forced, on account of the infringement, to sell Stutz the sealed product at the prices quoted in the contract for the unsealed product, the actual selling prices being set forth in Exhibit 28. Consequently the difference between the price previously agreed to be paid by Stutz under the contract, and the price forced upon plaintiff by the infringement, represents a loss to plaintiff which is calculable. In Exhibit 28 plaintiff takes the spread between the so-called established price and the actual selling price as to Stutz. [fol. 1034] Inasmuch as there is no testimony that the established price was ever satisfactory to Stutz, however, the Master has taken the figure $2.55 as explained above rather than $3.14, for which the Master is unable to find any basis in the testimony. Certain other manufacturers named in Exhibit 28 were also shown to have purchased from plaintiff at various prices prior to the infringement, and, based upon this testimony, the Master has recomputed that section of Exhibit 28 finding, as a result of this recomputation, that the plaintiff suffered a calculable loss occasioned by reduced selling prices of $2807.89 as per calculation set forth as "Appendix D" attached hereto.

The Master is satisfied that the price reductions from which this computation was made were brought about by the competition of defendant.

Reasonable Royalty.—The fact that the Master is not able to award any specific damages to the plaintiff on account of lost sales nor for any substantial loss due to reduction in its selling prices, does not, however, prevent a determination of the value of the patentee's property right and the damages to plaintiff by virtue of its invasion or appropriation by defendant, and in so determining the Master may resort to the large range of testimony pertinently bearing upon the reasonable amount to be rewarded.

The Court's adjudication respecting the merit of the invention, its utility and its advantages, must be given weight. A royalty should not, on the other hand, be a penalty, and should be low enough to permit a manufacturing profit to the licensee.

In this connection both the plaintiff and the defendant offered opinion evidence as to the matter of reasonable royalty. Mr. Frank L. Dyer, a man of wide experience in negotiating license agreements, an expert called by the plaintiff, gave as his opinion, based on the facts that were presented to him, that a rate of royalty at 15% of the [fol. 1035] manufacturer's selling price would be a reasonable royalty, and also that any profit the manufacturer could make should be divided with the patent owner. Francis L. O. Wadsworth, likewise a man of wide experience in this field, an expert called by the plaintiff, testified that the fair and reasonable royalty would be 20% of the net selling prices, which opinion was limited on the assumption that the plaintiff's established prices would be maintained, citing several examples of cases with which he was familiar. In neither case was the content of the hypothetical questions then objected to. Counsel for the defendant now states, however, that the plaintiff's expert testimony was based upon erroneous assumptions, specifically objecting to the following features:

(a) That the questions assumed that laminated glass "was largely used in the automobile trade for automobile windshields and windows."

(b) That the questions assumed that the lamination provided "an unclouded glass."

(c) That the questions assumed that the market was "rapid and broadening."

(d) That although the Ford contract was mentioned in the question the experience under this contract was not disclosed.

(e) That the questions assumed that the licensee would add to the actual cost "a profit of forty or fifty per cent."

(f) That the questions assumed that there was "a very substantial demand" for the product.

(g) That the questions assumed that "practically all risk had been eliminated and a substantial demand had been [fol. 1036] created."

Counsel for the defendant likewise introduced expert witnesses, Messrs. J. King Harness, patent attorney for Chrysler, and Lloyd Blackmore, patent attorney for General Motors. Mr. Harness testified that the royalty should not exceed ½¢ per foot. Mr. Blackmore stated that the royalty should not be that high if laminated glass were accepted for body lights as well as windshields. The general theory advanced by the plaintiff is that defendant infringed the patent at a time when the major development had been accomplished and when the patent, therefore, had a very real value. Applied to defendant's sales in footage, the value of this patent during the accounting period, according to Messrs. Harness and Blackmore, would be slightly over $20,000.00, which, for reasons hereinafter discussed, appears to be unduly moderate. The defendant's theory is based upon the assumption that the defendant infringed when manufacturing processes were in the experimental stage, considerable educational work remained to be done by way of selling the general public on the safety features of the product by way of creating a public demand, and that under such circumstances an award of a reasonable royalty would be in the nature of a mere gratuity.

This divergence of background requires a further examination into the industry and the product during the accounting period.

During the accounting period the plaintiff's production was a little over eleven million square feet, of which over 93% was sold to the Ford Motor Company and no small part of the balance to individual owners of automobiles as distinguished from manufacturers. Even adding to this the defendant's sales of four million square feet, the aggregate is comparatively small when compared to the total feetage of windshields and windows in the more than eight million cars produced during the accounting period.

[fol. 1037] The experience of the Ford Motor Company was not satisfactory in all respects. Many defects made themselves apparent and many windshields were required to be replaced. Mr. Wibel, Director of purchases for the

Ford Motor Company during the accounting period, testified that 20% of all Ford windshields were rejected or replaced as defective, "a loss ten times too high." Manufacturers of other cars in the low priced field, such as Chevrolet, Plymouth and Essex, did not appear to be unduly apprehensive that Ford would have any advantage over them on this account, and did not adopt safety glass on their own cars, although Plymouth did so later. Nor does there appear to have been a "very substantial demand" for laminated glass at that time. Mr. Wibel testiged that during the years 1928, 1929 and 1930 "there perhaps has been some public demand but not to the exent to influence us necessarily" and added that Ford standardized on safety glass on the ground of protecting the customers rather than on account of public demand. President Fisher of the Fisher Body Corporation stated that there was no public demand and Colonel Downey, a Chrysler executive, likewise agreed that there had been no substantial public demand, as did Mr. J. E. McLarty, service manager of the Hudson Motor Company. Mr. H. S. Wherrett, President of the Pittsburgh Plate Glass Company, testified that they met a great deal of resistance in endeavoring to sell this product to the automobile manufacturers inasmuch as there was no public demand for the same, and, as was testified by Mr. H. B. Higgins, Vice President of Pittsburgh Plate Glass Company, "the buying public were not, as the advertising man says, conscious of laminated glass. They didn't ask for it when they went to buy automobiles; consequently, the automobile manufacturers saw no sales advantage in using it. So that is why I say there was no demand for it." And even Mr. [fol. 1038] Neilson Edwards, Vice President of the plaintiff company, testified that as late as 1926 the public "knew nothing about" laminated glass, and the automobile manufacturers took a position that irrespective of the merits of the product, they did not put it on the cars that they manufactured until the public demanded it, and that they were forced to sell to individuals until they could create a public demand for the product.

In fact, a study of the plaintiff's sales figures reveals that, exclusive of Ford deliveries, total sales to automobile manufacturers and to the general public numbered slightly over seven hundred thousand square feet, which, if devoted entirely to windshields, would only equip about 175,000

cars, by way of contrast to the more than eight million new cars manufactured during the accounting period.

From this evidence, which appears clear and undisputed, it can hardly be said that the hypothetical questions upon which the answer of the plaintiff's witnesses Dyer and Wadsworth were based, conformed with the facts of the case insofar as they assumed a "substantial demand" or an "easy market" for the product. This testimony on the other hand does lend support to the theory of the defendant that no substantial profits could have been made unless and until the public had been educated to appreciate the safety features of laminated glass so that automobile manufacturers would be required to include the same in their products as standard equipment. The laminated glass sold under the Ford contract amounted to approximately 93 per cent. of the total, and the feetage sold by the plaintiff is not so imposing as it would have been had the total feetage been fairly distributed among a larger number of manufacturers. This testimony likewise satisfies the Master that the price schedule adopted by the plaintiff company [fol. 1039] was not generally accepted by automobile manufacturers as being fair.

Messrs. Harness and Blackmore, called by the defendant to testify as to a reasonable royalty, were likewise answering hypothetical questions which in some respects did not take into account established facts, particularly with respect to the Ford contract. This contract, dated October 17, 1927, provided, inter alia, that Triplex Company should grant a license to the Ford Company under the patent in suit, the Ford Company to develop and perfect a continuous process for the manufacture of Triplex glass; to keep the Triplex Company fully informed of the progress of the work with full and detailed information as to the construction of all machines designed and the methods of manufacture employed therein, and, if any such improvements should be patentable, the Triplex Company was to have all rights to the said patents both in the United States and in all foreign countries, subject to the right of the Ford Company to use the same. The Ford Company agreed not to manufacture the same for any use except for its own vehicles, and to etch on every piece made or installed by

it the name "Triplex" and also to use the name "Triplex" in all advertisements and advertising literature wherein laminated glass was referred to. The Triplex Company was likewise to have the full benefit of the purchasing power and position of the Ford Company in the purchase of glass and other materials for use in the production of laminated glass for sale to the Ford Company. The Ford Company agreed to purchase Triplex from the Triplex Company for a period of four years from April 30, 1928 up to one-half of the monthly requirements of the Ford Company, and the Ford Company agreed to pay Triplex Company at the cost of production to the Ford Company or to the Triplex Company, at the option of the Ford Com- [fol. 1040] pany, for such pieces of glass plus twenty cents for each Ford Windshield.

Clearly, there were further advantages to the Triplex Company in this contract than the twenty cents per foot for glass. The fact that the Ford Company, the largest automobile manufacturer in the country, was adopting the plaintiff's glass as standard equipment was an important factor, as well as the advertising feature. The provision of the contract providing that all developments made by the Ford Company which were patentable would be assigned to the Triplex Company and which, in effect, availed plaintiff of the services of the Ford engineering staff, was likewise an important feature of this contract and which was not taken into account in the hypothetical questions submitted to the experts called by the defendant.

In considering the question of general damages, the Master may consider everything disclosed in the litigation which has tendency to establish its worth. Certainly the defendant's conduct and actual experience during the infringing period, insofar as it discloses its own estimate of the importance and value of the patent, and the Court's adjudication respecting the merit of the invention, have persuasive bearing upon this matter. Lee v. Malleable Iron Range Co., 247 Fed, 795. The question is, what would have been a reasonable royalty considering the nature of the invention, its utility and advantages, and the extent of the use involved? In the absence of proof of loss of sales or injury by competition the only measure of damages would be such sums as, under all the circumstances, would

have been a reasonable royalty for the defendant to have paid. In the words of Denison, C. J. in Egry Register Co. v. Standard Register Co., 23 Fed. (2d) 438—

"To adopt a reasonable royalty as the measure of damages is to adopt and interpret, as well as may be, the fiction [fol. 1041] that a license was to be granted at the time of beginning the infringement, and then to determine what the license price should have been * * * When the result is to interfere with a patent monopoly, which the patentee was in position to and desired to keep, by retaining the entire market himself, his compensation for parting against his will with that opportunity must take due account of the loss to him of anticipated profits on the business which the licensees will thus get away from him * * *"

Prior to the infringement the plaintiff had recognized the necessity of establishing a public demand. Concentrating their efforts largely on retail distribution in 1926 and 1927 the plaintiff company established retail offices in most of the major cities of the country, including New York, Philadelphia, St. Louis, Cleveland, Chicago, San Francisco, Los Angeles, and several others. They went into display advertising in the Saturday Evening Post, Time, The New Yorker and three or four other magazines, did a great deal of newspaper advertising and obtained a great deal of news publicity. They spent about $250,000.00 on publicity in 1926-27. After the Ford contract was signed the latter spent $15,000,000.00 on advertising its Model "A" car, and featuring Triplex therein, so that Triplex then discontinued its own advertising.

Prior to the infringement the plaintiff had sold to Chrysler as option equipment and as standard equipment on a special phaeton body it was about to bring out. Yellow Taxicab Company had adopted laminated glass of plaintiff's manufacture as standard equipment, Lincoln had adopted it as standard, as also had Ford. Cadillac, Chrysler, Buick and Hudson had adopted the plaintiff's product as optional equipment, and had made some effort to circularize their respective dealers, offering cars equipped with laminated glass as optional equipment.

[fol. 1042] It can readily be seen, therefore, that while the

Master is unable to find that a "very substantial demand" existed for laminated glass prior to the accounting period, that the manufacturers and the purchasing public were, in the beginning of 1928, becoming conscious of the advantages of laminated glass and the plaintiffs were well on the way toward attaining a "substantial demand" for their product.

When defendant entered the field it established prices considerably lower than those of the plaintiff, which naturally led considerable business to leave the plaintiff and go to the defendant, and also caused a reduction in the plaintiff's selling prices. While the Master has not been able to approximate, mathematically, what sales were lost by the plaintiff on account of the infringement, he is satisfied that the price policy of the defendant substantially drove the plaintiff out of the laminated glass business, and that, although other companies were engaged in the laminated glass business, their competition in the manufacture of laminated glass for automobiles was negligible.

The Court has found that the patent in suit consists of a new article of manufacture, is a pioneer patent, and partakes of the humane, and, although the Master has allowed the defendant substantially all of the manufacturing costs claimed by it, except as to the unit price of plate glass which entered into the infringing product, the net loss suffered by the defendant as thus calculated amounts to less than $277,000.00 on gross sales of over eight million dollars.

It was conceded by the defendant that it established its price policy during the accounting period for the purpose of selling to one or more automobile manufacturers in each price field at a low price, in order that other manufacturers in the same fields would be required, on account of competition, to equip their own cars in the same manner.

[fol. 1043] It is, of course, difficult to determie that there was a figure somewhere between the so-called "established price" of the plaintiff and the selling prices of the defendant at which sales could be made at a profit. In view of the fact that the net loss of the defendant was less than $277,000.00 on this volume of business, however, it is evident that the prices of the defendant would not have required a very great increase before profits would have been shown. It would be obviously unfair for the Master to determine

this question of general damages upon an assumption that the price policy of the defendant was the only proper policy to be pursued, as the judgment of the officers of the defendant should not be imposed upon the officers of the plaintiff company. While a determination of a reasonable royalty is necessarily difficult, it is not impossible, as it presents no greater difficulties than are met by Courts and Juries in other fields of litigation.

The license agreement entered into by plaintiff and The Johnston Glass Company under date of May 20, 1929, is likewise worthy of consideration. This agreement calls for a royalty or license fee of 5 per cent. of the selling price or 10 cents per square foot of laminated glass, whichever is greater, with licensee's sales per calendar year limited to 10 per cent. of the aggregate sales price of licensor, but not to be limited to less than $1,000,000.00 annually. All glass sold by licensee was to be marked as having been manufactured under this license and likewise all advertising matter. The licensor was to fix the selling prices, and which the licensee agreed to observe, useful information was to be exchanged, and all patents on modifications or improvements to be the property of the licensor.

Under all the circumstances of this case as outlined above, and in view of all the testimony which the Master [fol. 1044] has heard, the Master is of the opinion that, considering the nature of the invention, its utility and advantages and the extent of the use involved, a reasonable royalty would be ten cents per square foot, which, multiplied by the 4,141,207 total sales in footage of defendant throughout the accounting period, amounts to $414,120.70. In arriving at this figure, the Master is in effect assuming the existence ab initio of, and declaring the equitable terms of a supposititious license, and does this nunc pro tunc. It creates and applies retrospectively a compulsory license. Egry Register Co. v. Standard Register Co., 23 Fed. (2d) 438.

Findings of Fact

1. That the infringing period began on January 1, 1928 and ended May 30, 1930.

2. That the defendant had knowledge of the patent in suit when it began its infringement.

3. That the defendant was advised by patent counsel that if it dehydrated its gelatin by means of a dehydrating agent so as to leave it substantially free from moisture, it would infringe.

4. That there was an honest difference of opinion between patent counsel representing plaintiff and patent counsel representing defendant as to whether the patent in suit was actually infringed.

5. That the actual cost to Pittsburgh Plate Glass Company to manufacture the one-eighth inch plate glass used by it, or sold by it to and used by Duplate Corporation in manufacturing the infringing product, was $.15590 per square foot in 1928; $.15637 in 1929; and $.18569 in the first five months of 1930.

[fol. 1045] 6. That the savings to Pittsburgh Plate Glass Company brought about by its use of patented process and apparatus owned by it and used in the manufacture of the one-eighth inch plate glass in question was $.12474 per square foot in 1928; $.15637 in 1929; and $.18569 in the first five months of 1930.

7. That Pittsburgh Plate Glass Company paid as Federal Income Tax on its manufacture of the one-eighth inch plate glass in question, 2.267¢ per square foot in 1928; 2.194¢ in 1929; and 1.395¢ in the first five months of 1930, and that no claim for refund is pending.

8. The Pittsburgh Plate Glass Company suffered a "special cutting loss" on its sales of the one-eighth-inch plate glass in question, amounting to 1.548¢ per square foot in 1928; 1.621¢ in 1929; and 2.590¢ in the first five months of 1930.

9. That the interest on Pittsburgh Plate Glass Company's investment in the manufacture of the one-eighth-inch plate glass in question amounted to 2.553¢ per square foot in 1928; 2.021¢ in 1929; and 3.482¢ in the first five months of 1930.

10. That Duplate Corporation sold its infringing product through the sales organiaztion of Pittsburgh Plate Glass Company, and the commissions charged therefor, being at the rate of 5% on sales to January 1, 1929 and at 3% there-

after, and amounting to $220,742.95, were reasonable and proper.

11. That the hazards connected with the manufacture of laminated glass were such that a considerable amount of the infringing product had to be rejected or "scrapped" in order that a certain volume of salable specimens might be produced.

[fol. 1046] 12. That defendant suffered certain "factory operating losses" in the manufacture of the infringing product, which losses, exclusive of the cost of the one-eighth-inch plate glass included therein, totalled, during the accounting period $538,019.87.

13. That during the accounting period customers returned to defendant and received credit for certain laminated glass found to be defective, which returns, exclusive of the cost of the one-eighth-inch plate glass included therein, totalled $286,041.61.

14. That subsequent to the accounting period customers returned to defendant and received credit for certain laminated glass sold during the accounting period and subsequently found to be defective, which returns, less salvage, totalled $82,788.64.

15. That of the so-called "Experimental Account" set up by defendant, $98,312.71 thereof actually represents costs of production rather than experimental expenses.

16. That defendant spent the sum of $21,273.83 in dismantling and moving equipment in the hope of correcting certain manufacturing difficulties experienced in the old plant, this figure being set up in the account as "Extraordinary Expenses."

17. That defendant, in figuring its costs, used average manufacturing costs month by month although production costs varied materially with different orders. The Master is unable to determine specific manufacturing costs.

18. That a change in defendant's accounting procedure during the accounting period necessitates a separate item, set forth as "Additional Pyralin Losses", said losses amounting to $219,036.93.

[fol. 1047] 19. That defendant, during the accounting period, operated at a net loss in the manufacture and sale of the infringing product of $276,857.47.

20. That there is no established royalty for the patent in suit.

21. That plaintiff had the manufacturing facilities, personnel and capital to handle the sales made by Duplate Corporation, as well as its own.

22. That the plaintiff suffered a loss of $2,807.89 due to price reductions forced upon it by the price policy of the defendant.

23. That the plaintiff had an investment in its laminated glass business of an amount approximately $2,800,000.00.

24. That the plaintiff, at the time the infringement began, had established a market for laminated glass.

25. That a reasonable royalty for the manufacture of laminated glass under the patent in suit during the accounting period was 10¢ per square foot.

26. That the defendant during the accounting period manufactured 4,141,207 square feet of laminated glass in infringement of the patent in suit.

Conclusions of Law

1. That defendant was not a conscious and deliberate infringer of the patent in suit.

2. That Pittsburgh Plate Glass Company is entitled to credit for only the manufacturer's cost of the one-eighth-inch plate glass used by it, or sold by it to and used by Duplate Corporation, in making laminated glass in infringement of the patent in suit.

[fol. 1048] 3. That in computing the manufacturer's cost of the one-eighth-inch plate glass in question defendant is entitled to an allowance for the use of patented process and apparatus owned by it and used in the manufacture aforesaid.

4. That in computing the manufacturer's cost of the one-eighth-inch plate glass in question, defendant is entitled to

an allowance for Federal Income Tax paid by it on the manufacture thereof.

5. That in computing the manufacturer's cost of the one-eighth-inch plate glass in question, defendant is entitled to an allowance for "special cutting loss".

6. That in computing the manufacturer's cost of the one-eighth-inch plate glass in question, defendant is entitled to an allowance for interest on its investment.

7. That the defendant is entitled to charge sales expenses in computing its profits or losses arising from the infringement.

8. That the cost of the one-eighth-inch plate glass used by the defendant but later resulting in operating losses or returns should be included in the cost of plate glass used, in computing defendant's profits or losses.

9. That the defendant is entitled to include "factory operating losses" in its costs, in computing its profits or losses.

10. That defendant is entitled to charge the cost of the infringing product returned as defective during the accounting period as part of its manufacturing cost in this accounting.

11. That defendant is entitled to charge the cost of the infringing product sold during the accounting period but [fol. 1049] returned as defective subsequent to the accounting period, as part of its manufacturing cost in this accounting, the cost thereof to be figured by multiplying the feetage thus returned by the average monthly costs for May, 1930.

12. That defendant is entitled to charge as a part of production costs that part of the defendant's "Experimental Account" found to represent costs of production.

13. That defendant is entitled to charge as a part of production costs the sum set out in the account as "Extraordinary Expenses".

14. That the nature of this accounting is such that specific selling prices cannot be compared with average monthly

costs in order to distinguish loss-producing from profit-making sales.

15. That defendant is entitled to include "Additional Pyralin Losses" in its manufacturing costs during the accounting period.

16. That the record does not establish any basis upon which an award could be made to plaintiff for lost profits on account of sales lost to plaintiff due to the infringement.

17. That plaintiff is entitled to an award of $2807.89 due to price reductions forced upon it by the infringement.

18. That plaintiff is entitled to an award of $414,120.70 as royalty on the infringing laminated glass manufactured by defendant during the accounting period in infringement of the patent in suit.

[fol. 1050] The Master's Readings, Testimony and Exhibits

The Master's readings, divided as to the particular questions to which they pertain, are listed in "Appendix D", which is attached hereto.

There is returned herewith a true and correct transcript of the evidence and proceedings had and taken before the undersigned, consisting of 1404 pages, bound in 3 volumes. There are also returned the several exhibits presented, indices to 73 thereof being pasted on the two envelopes containing the same, and 4 additional exhibits (9, 9-A, a template and examples of defects) too bulky to permit inclusion in these envelopes, being returned separately.

The Master would be ungrateful were he not to express his appreciation of the invaluable assistance rendered by Counsel for both parties, both for the thoroughness and clarity of their various briefs and for the calculations submitted by them, which enabled the Master to make his final calculations without being required to employ an accountant for this purpose.

Respectfully submitted, G. Dixon Shrum, Master.

[fol. 1051] The Fees of the Master's Office

The Fees of the Master's Office are:

Master's Fees	$15,000.00
Reporter's Fees	1,439.50
Total	$16,439.50

The above has been paid by the parties as follows:

By Plaintiff:

Master's Fees	$7,500.00	
Reporter's Fees	693.00	
		$8,193.00

By Defendant:

Master's Fees	$7,500.00	
Reporter's Fees	746.50	
		8,246.50
Total		$16,439.50

[fol. 1052] APPENDIX "A"

Opinion of Special Master in re Plaintiff's Request for Order Directing Pittsburgh Plate Glass Company to Account for Profits on Plate Glass Sold to the Duplate Corporation.

By decree of Court dated December 5, 1931, the Pittsburgh Plate Glass Company was held to have, jointly with Duplate Corporation and by its own acts as well, infringed upon the Letters Patent here in suit, and the Special Master was ordered to ascertain and report to the Court the quantity of strengthened glass made by the Pittsburgh Plate Glass Company under said Letters Patent and also the gains, profits and advantages which the Pittsburgh Plate Glass Company received therefrom.

Subsequently Plaintiff interposed objections to the Duplate Corporation's statement of account (objections numbered 18 and 19) based upon the fact that the said account took credit for plate glass and pyralin at the market prices

thereof rather than at the costs of production to the Pittsburgh Plate Glass Company and the Dupont Viscaloid Company, respectively, and, following this objection still further, Plaintiff requested the Special Master to require the Pittsburgh Plate Glass Company to file an account revealing its profits on plate glass sold to the Duplate Corporation during the infringing period. Defendant, Pittsburgh Plate Glass Company, "takes the position that this request should be refused because (1) it goes beyond and is contrary to the scope of the pleadings and decrees in this cause; (2) the Pittsburgh Plate Glass Company infringed no right of the Plaintiff until it diverted plate glass to Du- [fol. 1053] plate Cutters and therefore cannot be compelled, as a matter of law, to account for prior profits; and (3) it is unfair to the Master and to the Defendants to permit the Plaintiff to reverse its positions and reopen its case at this late date."

The Special Master, therefore, is now called upon to allow or refuse this request of the Plaintiff, and in the discussion thereof the objections of Defendant numbered (1) and (3) will first be considered, together.

Question. Should Plaintiff's request for an account of profits made by Pittsburgh Plate Glass Company on plate glass sold to the Duplate Corporation during the infringing period be refused because, as alleged, it goes beyond and is contrary to the scope of the pleadings and decrees in this cause, and/or because it is unfair to the Master and to the Defendants to permit the Plaintiff, as alleged, to reverse its positions and reopen its case at this late date?

The Special Master is of the opinion that neither of the two above objections of Defendant should prevail. While the Interlocutory Decree does not specifically refer to profits of Pittsburgh Glass Company in the manufacture of plate glass sold to the Duplate Corporation, neither does it exclude such profits. The Interlocutory Decree does call upon the Special Master to ascertain "the gains, profits and advantages which the Defendant, Pittsburgh Plate Glass Company has received or which have accrued to it from said infringement upon the exclusive rights of Plaintiff. * * *" The measure by which these "gains, profits and advantages" should be ascertained and of what they rightfully consist is our ultimate question, and consequently cannot

be determined without a consideration of Defendant's second objection and the law pertaining thereto. It should [fol. 1054] also be borne in mind that the account filed by the Duplate Corporation is a part of the pleadings and, it having been determined as well as admitted, that the Duplate Corporation was the alterego of the DuPont Corporation and Pittsburgh Plate Glass Company, severally, and vice versa, the question presented by Plaintiff might also be considered with respect to this account and quite apart from that portion of the Interlocutory Decree quoted above.

Nor does the Special Master believe the Plaintiff's request for this further accounting by the Pittsburgh Plate Glass Company to be untimely. The Interlocutory Decree, which raises the question here presented, was entered and presented to the Special Master in the form of an Exhibit before Plaintiff's case had been closed, and Plaintiff, furthermore, could not have raised this question until the identity of the Duplate Corporation and Pittsburgh Plate Glass Company had been determined. Once this identity had been established by the Interlocutory Decree its relationship to a proper basis of accounting was immediately in question (all of which was prior to Plaintiff's closing of its proofs), and therefore even if these specific exceptions had never been raised the Special Master could not have ignored the possible effect of the facts determined by the Interlocutory Decree upon the question of the accounting method which he should properly follow. In Coffield Motor Washer Co. v. Wayne Mfg. Co., 225 Fed. 558 and Armstrong v. Belding Bros. & Co., 280 Fed. 895 the Court held that the Master should look to the evidence for the purpose of determining what issues in the accounting await his determination, even though specific exceptions pertaining thereto may not have been presented.

Having determined, therefore, that Plaintiff's request for an account of profits made by Pittsburgh Plate Glass Company on plate glass sold to the Duplate Corporation during [fol. 1055] the infringing period is subject to neither the first nor third objection raised by Defendant thereto, we come to the fundamental question before the Special Master, namely:

Should the Special Master, in ascertaining the possible profits of Pittsburgh Plate Glass Company from this infringement, credit the Pittsburgh Plate Glass Company with

the market value of such of the raw materials incorporated in the patented structure as were actually manufactured by it, or should it be credited with the manufacturer's cost thereof?

The pertinent facts to which the proper rule of law must be applied are as follows: The patented product manufactured by Pittsburgh Plate Glass Company consisted of two layers of ⅛ inch plate glass between which was sandwiched a layer of transparent viscous material known as pyralin, the result being a laminated glass well adapted for automobile windows and windshields due to its shatter-proof qualities. Plate glass had previously been used in automobile windows and windshields but not plate glass of this thickness—⅛ inch plate glass being too light for this purpose. This thickness was used in train windows, for glazing and for other purposes, and consequently had a general market value outside of the automobile industry. To the automobile industry, however, ⅛ inch plate glass was worthless. Laminated glass, furthermore, displaced heavier grades of plate glass in automobile construction, and as a consequence thereof if Pittsburgh Plate Glass Company had not entered the laminated glass field, it not only would have failed to sell its ⅛ inch plate glass to the automobile industry (except, perhaps, as a raw material to manufacturers of laminated glass in competition with foreign markets) but also [fol. 1056] would have lost sales of heavier grades of plate glass which laminated glass displaced.

Defendant contends that these facts require application of the rule of law expressed in Barber Asphalt Paving Co. v. Standard Asphalt & Rubber Co., 30 F. (2d) 281, 284 (C. C. A. 7th Cir., 1928;—certiorari denied, 278 U. S. 659); and allied cases, including the following:

Homolin Co. v. Harway Dyewood & Extract Mfg. Co., 166 Fed. 434, 436 (C. C. A. 2d Cir., 1908);

Webster Loom Co. v. Higgins, 43 Fed. 673, 674-5 (S. D. N. Y., 1890);

Armstrong v. Belding Bros. & Co., 178 Fed. *Fed.* 554, 556 (D. Conn., 1910);

Carbice Corp. v. Amer. Pats. Development Corp., 283 U. S. 27 (1931).

The rule of law which Defendants seek to invoke is probably best expressed in the Barber Asphalt Paving Co. Case (supra) in which the Court states at page 284,

"(b) Where noninfringing commodities which are marketable, that is, fit for market, are produced by the infringer and subsequently used by him in making the infringing products, then market value (ordinarily selling or transfer value) rather than cost to the infringer, is the proper basis far determining profits."

Defendants likewise maintain that Pittsburgh Plate Glass Company infringed no right of the plaintiff until it diverted plate glass to Duplate Cutters—that up to that point it was simply engaged in the manufacture of a noninfringing, marketable commodity, the profits on which belong to it.

Plaintiff, on the other hand, submits that the rule of law applicable to these facts is that expressed in Armstrong v. [fol. 1057] Belding Bros. & Co., 297 Fed. 728 (C. C. A. 2d. Cir., 1924;—certiorari denied 265 U. S. 585) at pages 731-732 and in Conroy v. Penna. Electrical & Mfg. Co., 199 Fed. 427 (C. C. A. 3d. Cir., 1912), in the latter of which the Court, at page 429, states,

"It is idle, therefore, to say that any hard and fast rule can be made applicable to all cases where profits are to be accounted for. The court and the accounting officer will consider each case in the light of its own peculiar characteristics, and deal with it practically and in a common-sense manner. Upon examination it appears self-evident, from the very nature of the patented invention, that it does not consist of any mere improvement upon, attachment to or modification of a prior device of some special character, but that, on the contrary, it constitutes a new and complete type of article of manufacture, comprising and composed of a combination of certain described elements, constituting a single unifary and complete structure, no one of whose parts or elements could possibly be omitted or withdrawn and a useful and operative device remain."

In these cases, to be discussed later, Defendants were ordered to account for all of the profits made from the manufacture and sale of the complete article.

Having briefly mentioned the contentions of both parties with respect to this question, we must deal with the problem "practically and in a common-sense manner, in the light of its own peculiar characteristics." In so doing we must recognize the fact that, from a chronological stand-

point, Defendant infringed no right of plaintiff until the ⅛ inch plate glass reached the Duplate Cutters. On the other hand, however, we must grant that Defendant could sell as much ⅛ inch plate glass to those who desired it for railroad car windows, casement windows, toilet mirrors, etc., as it ever did, and that ⅛ inch plate glass manufac- [fol. 1058] tured by it for incorporation in the infringing device represented just so much that it would otherwise not have sold, and returned a profit which it would not have made save for the infringement.

If the "market value" rule means "general market value," furthermore, the ultimate result may well be, carried to its logical conclusion, that an infringer can make a profit of say, two dollars per unit in the manufacture of an article which has a market value outside of the particular infringing use, take a voluntary loss of one dollar per unit in the manufacture of the infringing article, come out of the whole transaction with a profit of one dollar per unit which he would not have made except for his infringement, and retain the profits of his wrongful act. If, on the other hand, "market value" means "market value for the same purpose for which the infringing article is used," the result is a practical and common-sense rule, free from the anomalous characteristics of the first stated definition.

The fact that the rule is generally stated in the broader sense is easily explained. Most manufactured articles have a single use. A plow is used for plowing with or without a patented seat, and if A invents a special seat which B unlawfully attaches to plows manufactured by him, it is reasonable for the Court to allow B to credit himself with the market value of his plow without adding the words "for the purpose for which plows of this nature are used," since all plows are used for plowing.

Defendant argues that had it bought this ⅛ inch plate glass on the open market for delivery to Duplate Cutters, the market price would obviously have been a proper cost of manufacture, and because the defendant in effect bought the glass from itself does not change the application of the rule. Since the adoption of the defendant's position would [fol. 1059] permit it, an infringer, to retain a profit on the sale of a commodity entering into the infringing product, while taking a voluntary loss on the sale of the completed product—and thereby defeat the very purpose of the patent

laws—the Special Master is unable to agree that it should be applied to the facts before him. This is especially true since it appears in the testimony that the defendant did sell the laminated glass at much below its costs as a finished product.

Examination of the cases cited by Defendant in this connection clearly shows that all are distinguishable from the facts before the Master.

In Barber Asphalt Paving Co. v. Standard Asphalt & Rubber Co., defendant made and sold prepared roofings with an asphalt base. Asphalt therefore had a determinable market value for roofing purposes, and the defendant company could have sold an indeterminate quantity of asphalt for roofing purposes, entirely aside from its infringing sales of asphalt prepared with the use of the patented process. Obviously it would be as unfair and inequitable to deprive that defendant of its profits on asphalt alone, aside from its value when prepared with the patented process, as it would be to allow this defendant, Pittsburgh Plate Glass Company, to reap profits on the manufacturing and sale of ⅛ inch plate glass which, just as obviously, it would not have reaped except for its infringement.

In Hemolin Co. v. Harway Dyewood & Extract Mfg. Co., logwood extract was a well-known marketable commodity both in the form of liquid and as a paste. Defendant infringed a patent for the treatment of the liquid and paste which gave them certain desirable qualities not theretofore enjoyed by them. In view of the fact that an undeterminable [fol. 1060] quantity of the untreated liquid and paste was yet salable for the same purpose as the improved article, the decision of the Court, in valuing the liquid or paste used at its market price rather than at cost of manufacture, can not be applied to the dissimilar facts of our case.

In Webster Loom Co. v. Higgins, the infringers of a patented loom for weaving carpets could have attained the same results, if, instead of using the infringing looms, they had used twice that number of non-infringing looms. The fact that the Court awarded the patentee the difference between the cost of weaving the carpets on the infringing looms and that cost on the non-infringing looms rather than the net profit per yard on all carpets made on the infringing looms, (thus awarding the saving effected by defendant's use of

the infringing looms) is quite in harmony with the Barber Asphalt and Hemolin Co. cases, but cannot be applied to the peculiar facts of our case without doing violence to common-sense, practicality, and good conscience.

The decision in the Armstrong v. Belding case reported in 178 Fed. 554, concerned itself with silk sold in an infringing package. Since the silk in the holder was adaptable for no purpose beyond that to which skein silk was adapted, the facts are again distinguishable. Carbice v. American Patents Holding Co., holding merely that the defendant was not an infringer simply because it sold Dry Ice, (an unpatented material) knowing that it was to be used in a patented container, is not in point. In Byerly v. Sun Co. the infringer had purchased rather than manufactured the raw materials; hence the decision is not applicable here.

It is true, as Defendant contends, that the use of a marketable commodity in a patented device extends the market for that commodity. In the Barber, Hemolin and Webster [fol. 1061] Loom cases it may have extended the market for asphalt, logwood extract and wool. The distinction is, however, that in the above cases the respective defendants could still have sold the unimproved asphalt roofing, and the unimproved logwood extract, and could still have used the old looms, and for the same purposes, without any special master or Court being able to tell how much the market had been extended, while in the case at bar the market was not extended but was created, for the Pittsburgh Plate Glass Company would not have sold one foot of ⅛ inch plate glass to the automobile industry except for this infringement.

Having thus considered the authorities cited by Defendant in support of its position, let us consider the law from the standpoint of the plaintiff.

Armstrong v. Belding Bros. & Co., reported in 297 Fed. 728, involved a patent on a holder for skein silk, Defendant enclosed in the patented holder some skein silk manufactured by it. The Court, in rejecting Defendant's contention that it was entitled to charge in its account the market value of the skein silk sold in the infringing holders, stated, at page 732,

"What created the demand so supplied was not the desirability of the old silk, but that of the new holder * * *; defendant would not have sold a pound of holder silk had

it not availed itself of plaintiff's patent. Therefore it must pay all the profit it made on sales so made."

Defendant, in its Reply to Memorandum on Behalf of Plaintiff, attempts to distinguish the Armstrong Silk and allied cases cited by Plaintiff, inasmuch as they all exhibit instances of the well-known rule that where an infringer has made profits from the manufacture and sale of a patented article whose entire salable value is derived from the patented invention, the patentee is entitled to recover all the [fol. 1062] profits gained from the unlawful manufacture and sale, and that in all these cases the Court found as a fact *that no profits could have been made except for the use of the patent* (italics by Defendant), while in our case ⅛ inch plate glass has been a well-known marketable commodity for years.

The underlined portion of Defendant's statement brings us back to the question discussed with reference to the Barber, Hemolin and Webster Loom cases, namely, whether the proper market within which profits may be considered is the general market or the market created by potential purchasers and sellers of the article for the purpose for which the infringing article is used. Again it must be borne in mind that Defendant could have made no profits from ⅛ inch plate glass for the automobile industry except for the use of the patent, and, conversely, did not lose a market for a foot of ⅛ inch plate glass on account of the infringement. In other words, Defendants did not extend the market—they created one by the infringement of Plaintiff's patent. The Court in the Armstrong Case did not say that defendant would not have sold a pound of silk had it not availed itself of plaintiff's patent—it said that defendant would not otherwise have sold a pound of holder silk. In our case we cannot say that defendant would not have sold a foot of ⅛ inch plate glass had it not availed itself of plaintiff's patent, but we can and do say that defendant would not otherwise have sold a foot of ⅛ inch plate glass for the purpose in question, and that consequently the entire salable value of the ⅛ inch plate glass in question was derived from the patented invention.

Conroy v. Penna. Electrical & Mfg. Co., Carborundum v. Electric Smelting & Aluminum Co., and Rubber Co. v. Goodyear also stand for the proposition that where the en-

tire salable value of the article in question is derived from [fol. 1063] the patented invention, the patentee is entitled to all the profits gained from the unlawful manufacture and sale. As was said above, the Special Master does not agree with Defendant that the admitted fact that ⅛ inch plate glass was salable outside of the automobile industry is a valid distinction, as this fact does not effect the ultimate question, namely, whether any profits could have been made except for the use of the patent.

Conclusion

Defendant's sales of ⅛ inch plate glass which had been improved by the patented feature did not affect in any manner its sales of unimproved ⅛ inch plate glass. Every foot of ⅛ inch plate glass sold to the automobile industry through its alter-ego, Duplate Corporation represented just so much ⅛ inch plate glass it would not otherwise have sold. These two basic facts remove this situation from that set forth in the Barber Asphalt and allied cases.

If the Barber Asphalt case were held to apply to this situation, this infringer would be permitted to retain a net profit which it would not have made except for the infringement. The facts of the Barber Asphalt case itself, however, produced no such result. The quotation from Armstrong v. Belding, translated into the terms of this case, applies. That quotation, so translated, would read as follows:

"What created the demand so supplied was not the desirability of the old ⅛ inch plate glass but that of the new product * * *; defendant would not have sold a foot of the ⅛ inch plate glass for automobiles had it not availed itself of plaintiff's patent. Therefore it must pay for all the profit it made on sales of ⅛ inch plate glass for automobiles."

[fol. 1064] The rule of law in the Barber Asphalt case is both practical and sensible in the situation covered by it. The rule of law in Armstrong v. Belding is likewise the only practical and sensible solution on its facts. On both the facts involved and the practicality and reasonableness of the result, the rule of law set forth in Armstrong v. Belding must be applied to the facts of the case before us for consideration.

After due consideration, therefore, the Special Master concludes that Pittsburgh Plate Glass Company should be credited with only the manufacturer's cost of the 1/8 inch plate glass sold to the Duplate Corporation during the accounting period, and orders the Pittsburgh Plate Glass Company to file an account revealing its profits on 1/8 inch plate glass sold to the Duplate Corporation during the infringing period.

Since Dupont Viscaloid Company is not before us, no opinion as to its revealing its profits, if any, would be proper, nor is it necessary.

(Here follow 3 photos, side folios 1065-1066, 1067 and 1068)

Page 1 - Sales and Cost of Sales

		SALES
Gross Sales - Defendant's Exhibit Z, page A	4,141,207 sq. ft.	$8,101,614,03
Less Allowances		
Col, 5 page A, Exhibit Z		449,532.46
Sales - Net of returns and before corrections		7,652,082.17
Corrections in favor of Defendant - Exhibit 9A, page 10		294.88
Sales - Net of returns		7,651,787.29
Returns prior to May 31, 1930 - Exhibit Z, page A	437,971	812,770.93
Net Sales - exclusive of subsequent returns	3,713,236 sq. ft.	$6,939,016.36

COST OF SALES

1068)

Total labor, material and overhead cost of all production with thin plate glass as billed, less experimental, etc. - Exhibit
add experimental expense ded
Total labor, material and overhead cost as originally claimed by Defendant - before deducting contested items - Exhibit Z

Items included in above, contested in whole or in part:

Thin Plate Glass used as per Exhibit DD-FF-R	1928	3,600,212 sq. ft. @	.41628 plus
	1929	5,206,609 sq. ft. @	.40294
	1930	1,483,222 sq. ft. @	.35043

Cost of manufacturing Returned Sales exclusive of the thin plate glass which is included above:

Manufacturing cost - Income Accounts Exhibit 9 -				
Less thin plate glass included therein, Exhibit Z-	1928	118,099 sq. ft. x 2 @	.41628	9
	1929	282,411 sq. ft. x 2 @	.40294	22
	1930	26,861 sq. ft. x 2 @	.35043	1

So-called "Operating Losses" exclusive of thin plate glass which is included above:

"Operating Loss" - Exhibit O				
Less thin plate glass included therein, Exhibit O-	1928	1,521,665 sq. ft.	@ .41628	63
	1929	1,090,072 sq. ft.	@ .40294	43
	1930	148,233 sq. ft.	@ .35043	5

Interest on Investment in Duplate

Other contested items:

Additional pyralin losses -
Extraordinary expense -
Donations - Mellon Institute

Gross Sales - Defendant's Exhibit Z, page A	4,141,207 sq. ft.	$8,101,614.63
Less Allowances		
Col, 5 page A, Exhibit Z		449,532.46
Sales - Net of returns and before corrections		7,652,082.17
Corrections in favor of Defendant - Exhibit 9A, page 10		294.88
Sales - Net of returns		7,651,787.29
Returns prior to May 31, 1930 - Exhibit Z, page A	427,971	812,770.93
Net Sales - exclusive of subsequent returns	3,713,236 sq. ft.	$6,839,016.36

COST OF SALES

1068)

Total labor, material and overhead cost of all production with thin plate glass as billed, less experimental, etc. - Exhibit
add experimental expense deduct

Total labor, material and overhead cost as originally claimed by Defendant - before deducting contested items - Exhibit Z,

Items included in above, contested in whole or in part:

Thin Plate Glass used as per Exhibit DD-FF-R	1928	3,600,212 sq. ft. @	.41628 plus
	1929	5,206,609 sq. ft. @	.40294
	1930	1,483,222 sq. ft. @	.35043

Cost of manufacturing Returned Sales exclusive of the thin plate glass which is included above:

Manufacturing cost - Income Accounts Exhibit 9 -				
Less thin plate glass included therein, Exhibit Z-	1928	118,699 sq. ft. x 2 @	.41628	98
	1929	282,411 sq. ft. x 2 @	.40294	227
	1930	26,861 sq. ft. x 2 @	.35043	18

So-called "Operating Losses" exclusive of thin plate glass which is included above:

"Operating Loss" - Exhibit C				
Less thin plate glass included therein, Exhibit C-	1928	1,521,665 sq. ft.	@ .41628	633
	1929	1,090,072 sq. ft.	@ .40294	439
	1930	148,233 sq. ft.	@ .35043	51

Interest on Investment in Duplate

Other contested items:

Additional pyralin losses -
Extraordinary expense -
Donations - Mellon Institute
Commissions (Sales Expenses)
Experimental expenses
Triplex Suit and Patent expense

Portion of Manufacturing Cost on which there is no question or cont

FINDINGS OF SPECIAL MASTER

SALES

APPENDIX "B"

1,614,63		Gross Sales - Exhibit Z, page B			$8,101,614.63
		Less Allowances - Col. 5 page B, Exhibit Z		428,776.80	
9,532.46		Col. 13 page B, Exhibit Z, less adjustment $3,401.72		20,755.66	449,532.46
2,082.17					7,652,082.17
294.88					294.88
1,787.29					7,651,787.29
2,770.93					812,770.93
9,016.36					$6,839,016.36

OF SALES

mental, etc. - Exhibit Z, page B, Col. 10			7,755,620.78
ental expense deducted - Exhibit Y, page 4 - Paragraph 3			62,791.11
d items - Exhibit Z, page A			7,816,411.89
plus	1,498,706.90		
	2,097,973.89		
	519,769.61	4,116,450.49	
	631,280.83		
41628	98,824.04		
40294	227,589.38		
35043	18,825.80	345,239.22	286,041.61
	1,662,637.49		
41628	653,438.71		
40294	439,233.62		
35043	31,945.29	1,124,617.62	538,019.87
			110,000.00
		219,036.98	

				294.88
651,787.29				7,651,787.29
812,770.93				812,770.93
839,016.36				$6,839,016.36

ST OF SALES

imental, etc. - Exhibit Z, page B, Col. 10				7,755,620.78
ental expense deducted - Exhibit Y, page 4 - Paragraph 3				62,791.11
ed items - Exhibit Z, page A				7,816,411.89
28 plus		1,498,706.90		
94		2,097,973.89		
45		519,769.61	4,116,450.40	
		631,280.83		
.41628	98,824.04			
.40294	227,589.38			
.35043	18,825.80	345,239.22	286,041.61	
		1,662,637.49		
.41628	353,438.71			
.40294	439,253.62			
.35043	31,945.29	1,124,617.62	538,019.87	
			110,000.00	
		219,036.93		
		21,275.83		
		11,250.00		
		220,742.95		
		140,601.94		
		16,799.82	629,694.47	
no question or controversy				8,[illegible],208.35
				8,136,205.54

1065-1066

		APPENDIX "B"	MASTER'S CONCLUSION
Undisputed Costs as per page 1			$2,136,205.54
Cost of all Thin Plate Glass used - Exhibit DD & page 908 of Record			
Manufacturing Cost	1928 - 3,600,212 sq. ft. @ .15590	561,273.05	
	1929 - 5,206,609 sq. ft. @ .15637	814,157.45	
	1930 - 1,483,222 sq. ft. @ .18569	275,419.49	1,650,849.99
Interest on Investment	1928 - 3,600,212 sq. ft. @ .02553	91,913.41	
	1929 - 5,206,609 sq. ft. @ .02021	105,225.57	
	1930 - 1,483,222 sq. ft. @ .03482	51,645.79	248,784.77
Allowance for use of Patented Process	1928 - 3,600,212 sq. ft. @ .12474	449,090.44	
	1929 - 5,206,609 sq. ft. @ .09907	515,818.75	
	1930 - 1,483,222 sq. ft. @ .09694	143,783.54	1,108,692.73
Federal Income Tax	1928 - 3,600,212 sq. ft. @ .02267	81,610.81	
	1929 - 5,206,609 sq. ft. @ .02194	114,233.00	
	1930 - 1,483,222 sq. ft. @ .01395	20,690.95	216,540.76
"Loss Cutting"	1928 - 3,600,212 sq. ft. @ .01548	55,731.28	
	1929 - 5,206,609 sq. ft. @ .01621	84,399.13	
	1930 - 1,483,222 sq. ft. @ .02590	38,415.45	178,545.86
Adjustments in glass costs because of fractional multipliers			37.64
Cost of Returned Sales exclusive of glass cost which is included above - see page 1			286,041.61
"Operating Losses" exclusive of glass cost which is included above - see page 1			536,019.87
Interest on Investment in Duplate			110,000.00

Other Items Contested in whole or part

	Total page 1	Conceded or excluded by Master	
Additional pyralin losses	219,036.93		219,036.93
Extraordinary expense	21,273.83		21,273.83
Donations	11,250.00	11,250.00	-
Commissions	220,742.95		220,742.95
Experimental expenses	140,601.94	42,289.23	98,312.71
Triplex Suit & Patent Expense.	16,788.82	16,788.82	
Defendant's Additional Claim Exhibit W*	83,561.42		
Less Salvage (Record 1135)	772.78		82,788.64
Defendant's additional Claim Exhibit X*	72,060.42	72,060.42	

*(Treated here as additional to cost rather than deduction from sales)

Total Cost		7,115,873.83
Total Sales (uncontested) as per page 1		6,839,016.36
	Net Loss -	276,857.47

1067

8448

APPENDIX "C"

SALES OF TRIPLEX TO MANUFACTURERS REPRESENTING LOSSES OCCASIONED BY REDUCTIONS IN PRICES PREVIOUSLY PAID

Shipped to	Class	Quality	Area	Rate per Sq. Foot	Previous Rate	Difference	Total
August, 1928							
Motor Products	O	Plate	30	4.7837	4.80	.0163	.49
October, 1928							
Fleetwood Corp.	S	Plate	7,410	2.5409	2.55	.0001	.74
November, 1928							
Cadillac	O	Sheet	36	1.5869	2.40	.8131	29.27
January, 1929							
Motor Products	O	Plate	216	4.7154	4.80	.0846	18.27
May, 1929							
Motor Products	O	Plate	39	3.5031	4.80	1.2969	50.58
June, 1929							
Stutz	S	Plate	1,878	2.2494	2.55	.3006	564.53
July, 1929							
Stutz	S	Plate	3,997	2.257	2.55	.2930	1171.12
Chrysler	O	Plate	9	3.30	4.80	1.50	1 .50
August, 1929							
Stutz	S	Plate	2,230	2.2594	2.55	.2906	648.04
Chrysler	O	Plate	27	3.60	4.80	1.20	32.40
Sept. 1929.							
Stutz	S	Plate	383	2.2724	2.55	.2776	106.32
Chrysler	O	Plate	18	3.60	4.80	1.20	21.60
October, 1929							
Stutz	S	Plate	421	2.3516	2.55	.1984	83.53
January, 1930							
Chrysler	O	Plate	45	3.30	4.80	1.50	67.50
							$2807.89

"O" indicates Optional Equipment
"S" indicates Standard Equipment

1068

8440

[fol. 1069] APPENDIX "D"

The Master's Readings

(1) The Cost of ⅛-inch Plate Glass

Root v. Railway Co., 105 U. S. 189.
Christensen v. National Brake & Electric Co., 10 F. (2d) 856.
Claude Neon Lights, Inc. v. Federal Electric Co., Inc., 135 N. Y. Misc. 113.
Wm. Wrigley, Jr., Co. v. L. P. Larson, Jr., Co., 5 F. (2d) 731.
Cannon Mfg. Co. v. Cudahy Packing Co., 267 U. S. 333.
Ambridge Borough v. Philadelphia Co., 283 Pa. 5.
Barber Asphalt Paving Co. v. Standard Asphalt & Rubber Co., 30 F. (2d) 281.
Byerly v. Sun Co., 226 Fed. 759.
Hemolin Co. v. Harway Dyewood & Extract Mfg. Co., 166 Fed. 434.
National Tube Co. v. Mark, 10 F. (2d) 430.
Webster Loom Co. v. Higgins, 43 Fed. 673.
Armstrong v. Belding Bros. & Co., 297 Fed. 728.
Stromberg Motor Devices Co. v. Detroit Trust Co., 44 F. (2d) 958.
Standard Mailing Machines Co. v. Postage Meter Co., 31 F. (2d) 459.
Metallic Rubber Tire Co. v. Hartford Rubber Works Co., 275 Fed. 315.
Schmertz Wire Glass Co. v. Western Glass Co., 203 Fed. 1006.

(2) Allowance for Use of Patented Process and Apparatus

Mason v. Graham, 23 Wall. 261.
Tilgham v. Proctor, 125 U. S. 136.
Morgan Construction Co. v. Forter-Miller Engineering Co., 234 Fed. 324.
[fol. 1070] Wallace & Tiernan Co. v. City of Syracuse, 45 F. (2d) 693.
Mowry v. Whitney, 14 Wall. 620.

Carborundum Co. v. Elec. Smelting & Aluminum Co., 203 Fed. 976.
Conroy et al. v. Penn. Electrical & Mfg. Co., 199 Fed. 427.
Maimin v. Union Specialty Mach. Co., 187 Fed. 123.
Regina Music Box v. Otto & Sons, 114 Fed. 507.
Hurlbut v. Schillinger, 130 U. S. 456.
Crosby Valve Co. v. Safety Valve Co., 141 U. S. 441.
Armstrong v. Belding Bros. & Co., 297 Fed. 728.
Computing Scale Co. v. Toledo Computing Scale Co., 279 Fed. 648.
Flat Slab Patents Co. v. Turner, 285 Fed. 257.

(3) Federal Income Tax

Macbeth Evans Glass Co. v. L. E. Smith Glass Co., 23 F. (2d) 459.
Christensen v. National Brake & Electric Co., 10 F. (2d) 856.
W. W. Sly Mfg. Co. v. Pangborn Corp., 276 Fed. 971; 284 Fed. 217.
L. P. Larson, Jr., Co. v. William Wrigley, Jr., Co., 277 U. S. 97.
Stromberg Motor Devices Co. v. Detroit Trust Co., 44 F. (2d) 958.
Farmers' Handy Wagon Co. v. Beaver Silo & Box Mfg. Co., 259 Fed. 270.
Gordon v. Turco-Halva Co., 247 Fed. 492.
Macbeth Evans Glass Co. v. L. E. Smith Glass Co., 21 F. (2d) 553.

(4) Factory Operating Losses

Rubber Co. v. Goodyear, 9 Wall. 788.
Manufacturing Co. v. Cowing, 105 U. S. 253.
[fol. 1071] Macbeth Evans Glass Co. v. L. E. Smith Glass Co., 23 F. (2d) 459.
L. P. Larson, Jr. Co. v. Wm. Wrigley, Jr. Co., 20 F. (2d) 830.
Wm. Wrigley, Jr. Co. v. L. P. Larson, Jr. Co., 5 F. (2d) 731.
Continuous Glass Press Co. v. Schmertz Wire Glass Co., 219 Fed. 199.
Callaghan v. Myers, 128 U. S. 617.

Crosby Steam Gage & Valve Co. v. Consolidated Safety Valve Co., 141 U. S. 441.
Canda Brothers v. Michigan Malleable Iron Co., 152 Fed. 178.
Underwood v. Fox Typewriter Co., 220 Fed. 880.

(5) Defective Product Returned

Macbeth Evans Glass Co. v. L. E. Smith Glass Co., 23 F. (2d) 459.
McKee Glass Co. v. Fry Glass Co., 248 Fed. 125.
Crosby Valve Co. v. Safety Valve Co., 141 U. S. 441
Callaghan v. Myers, 128 U. S. 617.
Metallic Tire Co. v. Hartford Rubber Works, 245 Fed. 860.
Permutit Co. v. Refinite Co., 20 F. (2d) 695.
Oil Well Improvements Co. v. Acme Fdry. & Mach. Co., 31 Fed. (2d) 898.
Morgan-Miller Eng. Co. v. Morgan Construction Co., 234 Fed. 324.

(6) Comparison of Average Costs and Specific Selling Prices

Christensen v. National Brake & Electric Co., 10 F. (2d) 856.
Macbeth Evans Glass Co. v. L. E. Smith Glass Co., 21 F. (2d) 553,
Continuous Glass Press Co. v. Schmertz Wire Glass Co., 219 Fed. 190.
[fol. 1072] McKee Glass Co. v. Fry Glass Co., 248 Fed. 125.
Crosby Valve Co. v. Safety Valve Co., 141 U. S. 441.
Callaghan v. Myers, 128 U. S. 617.
Elizabeth v. Pavement, 97 U. S. 126.
Permutit Co. v. Refinite Co., 27 Fed. (2d) 695.
Union Electric Welding Co. v. Curry, 279 Fed. 465.

(7) Established Royalty

Rude v. Westcott, 130 U. S. 152.
Wallace & Tiernan Co. v. City of Syracuse, 45 F. (2d) 693.
Dunkley Co. v. Central Calif. Canneries, 7 F. (2d) 972.

(8) Damages Because of Sales Lost to Defendant

Seymour v. McCormick, 16 How. 479.
Dowagiac Mfg. Co. v. Minnesota Moline Plow Co., 235 U. S. 641.
McSherry Mfg. Co. v. Dowagiac Mfg. Co., 160 Fed. 948.
Motor Player Corp. v. Piano Motors Corp., 19 F. (2d) 993.
Dobson v. Dornan, 118 U. S. 10.
Standard Brands v. Federal Yeast Corp., 38 F. (2d) 314.
Standard Mailing Machines Co. v. Postage Meter Co., 31 F. (2d) 459.
National Metal Weather Strip Co. v. Bredin, 186 Fed. 490.
Cornely v. Marckwald, 131 U. S. 159.
Farmers' Handy Wagon Co. v. Beaver Silo & Box Mfg. Co., 259 Fed. 270.
Bemis Car Box Co. v. J. G. Brill Co., 200 Fed. 749.
Sears, Roebuck & Co. v. Pearce, 253 Fed. 960.
Underwood Typewriter Co. v. E. C. Stearns & Co., 227 Fed. 74.

(9) Loss Due to Sales at a Reduced Price

Boesch v. Graff, 133 U. S. 697.
Cornely v. Marckwald, 32 Fed. 292; 131 U. S. 159.
[fol. 1073] Force v. Sawyer-Boss Mfg. Co., 143 Fed. 894.
Yale Lock Mfg. Co. v. Sargent, 117 U. S. 536.
Pressed Glass Prism Co. v. Continuous Glass, 181 Fed. 151.
Oil Well Improvements Co. v. Acme Fdry. & Mach. Co., 31 F. (2d) 898.
Dowagiac Mfg. Co. v. Deere & Weber, 284 Fed. 331.

(10) Reasonable Royalty

Wallace & Tiernan Co. v. City of Syracuse, 45 F. (2d) 693.
Austin-Western Road Machinery Co. v. Disc Grader & Plow Co., 291 Fed. 301.
Standard Brands v. Federal Yeast Corp., 38 Fed. (2d) 314.

American Can Co. v. Goldee Mfg. Co., 31 F. (2d) 492.
Dunkley Co. v. Central Calif. Canneries, 7 F. (2d) 972.
Consolidated Rubber Tire Co. v. Diamond Rubber Co., 226 Fed. 455.
Rockwood v. General Fire Extinguisher Co., 37 Fed. (2d) 62.
The Suffolk Co. v. Hayden, 3 Wall. 315.
Seymour v. McCormick, 16 How. 479.
Lee v. Malleable Iron Range Co., 247 Fed. 795.
Egry Register Co. v. Standard Reg. Co., 23 Fed. (2d) 438.

[fol. 1074] IN UNITED STATES DISTRICT COURT

PLAINTIFF'S EXCEPTIONS TO MASTER'S FINAL REPORT—Filed February 1, 1934

Exceptions taken by the plaintiff to the report made and filed in the offices of the clerk of the District Court of the United States for the Western District of Pennsylvania, on the twelfth day of January, 1934, by G. Dixon Shrum, appointed Special Master in the above-entitled case, to take and state an account as directed in decrees entered in the above-entitled case on the ninth day of December, 1929, and the fifth day of December, 1931.

First Exception. To the Master's finding of fact that there was an honest difference of opinion between patent counsel representing plaintiff and patent counsel representing defendant as to whether the patent in suit was actually infringed.

Second Exception. To the Master's conclusion of law that the defendant was not a conscious and deliberate infringer of the patent in suit.

Third Exception. To the Master's failure to find that the record before the Master fails to disclose any "standard of comparison" with laminated glass.

Fourth Exception. To the Master's failure to find that there is no proof that the defendant's patents contributed anything to the profits derived from the infringing sales

of laminated glass or added anything to the salability or usefulness of the laminated glass sold in infringement of the patent in suit.

Fifth Exception. To the Master's conclusion of law that in computing manufacturer's cost of the one-eighth inch plate glass in question, defendant is entitled to an allow- [fol. 1075] ance for the use of patented processes and apparatus owned by it and used in the manufacture aforesaid.

Sixth Exception. To the Master's failure to conclude, as a matter of law, that since the patent in suit created a new article of manufacture by the use of a new element, the plaintiff as a matter of law is entitled to all the profits derived from infringing sales without apportionment or allowance to the defendant.

Seventh Exception. To the Master's failure to conclude as a matter of law that the comparison of the continuous process with the old process is not the proper standard of comparison in this case.

Eighth Exception. To the Master's failure to conclude as a matter of law that the defendant, being a deliberate and conscious infringer, is not entitled to any allowance for the use of its patents.

Ninth Exception. To the Master's conclusion of law that in computing the manufacturer's cost for one-eighth inch plate glass in question, the defendant is entitled to an allowance for Federal income tax paid by it in the manufacture thereof.

Tenth Exception. To the Master's failure to conclude as a matter of law that the defendant, being a conscious and deliberate infringer, is not entitled to any allowance for amounts paid by it as Federal income tax.

Eleventh Exception. To the Master's conclusion that Federal income tax can not be satisfactorily taken care of in the method suggested by counsel for plaintiff.

Twelfth Exception. To the Master's failure to conclude as a matter of law that an allowance for Federal income tax, if any, should be only on so much of the defendant's [fol. 1076] income or profits which remain after deducting

the allowances for patents, interest on investment and "Special Cutting Loss."

Thirteenth Exception. To the Master's finding that Pittsburgh Plate Glass Company suffered a "Special Cutting Loss" on its sale of the one-eighth inch plate glass in question, amounting to 1.548 cents per square foot in 1928; 1.621 cents in 1929 and 2.590 cents in the first five months of 1930.

Fourteenth Exception. To the Master's failure to find that the figures of 1.548 cents in 1928, 1.621 cents in 1929 and 2.590 cents in the first five months of 1930, constituting the so-called "Special Cutting Loss," were arrived at by using as cost not only the manufacturing and administration cost of 15.590 cents in 1928, 15.837 cents in 1929 and 18.569 cents in the first five months of 1930, but also the allowance for the use of patents of 12.474 cents in 1928, 9.907 cents in 1929, and 9.694 cents in the first five months of 1930, plus interest on investment of 2.553 cents in 1928, 2.021 cents in 1929, 3.482 cents in the first five months of 1930, plus Federal income tax of 2.267 cents in 1928, 2.194 cents in 1929 and 1.395 cents in the first five months of 1930.

Fifteenth Exception. To the Master's failure to specifically find that the so-called "Special Cutting Loss" represents a reduction of expected profit and not an actual manufacturing loss.

Sixteenth Exception. To the Master's conclusion of law that in computing manufacturer's cost of the one-eighth inch plate glass in question, defendant is entitled to an allowance for "Special Cutting Loss."

Seventeenth Exception. To the Master's finding of fact that the selling commissions amounting to $220,742.95 were reasonable and proper expenses.

[fol. 1077] Eighteenth Exception. To the Master's finding that there is no testimony upon which to base a finding of fact that the sales made by the Pittsburgh Plate Glass Company, in the capacity of a jobber, were made at a price sufficient to cover the expenses of the said sales and to reflect a profit.

Nineteenth Exception. To the Master's failure to find that the amount of defendant's selling expenses applicable to profit making sales in this account was $79,344.84.

Twentieth Exception. To the Master's conclusion of law that in computing manufacturer's cost of the one-eighth inch plate glass in question, defendant is entitled to an allowance for interest on its investment.

Twenty-first Exception. To the Master's finding that the hazards connected with the manufacture of laminated glass were such that a considerable amount of the infringing product had to be rejected or "scrapped" in order that a certain volume of salable specimens might be produced.

Twenty-second Exception. To the Master's failure to find that there is no proof in the record to enable him to determine what, if any, loss the defendant suffered in cutting smaller pieces from larger pieces of pyralin.

Twenty-third Exception. To the Master's failure to find that there is no proof in the record to enable him to determine what, if any, loss the defendant suffered in the breakage of glass.

Twenty-fourth Exception. To the Master's conclusion of law that the cost of one-eighth inch plate glass used by the defendant but later resulting in operating losses or returns, should be included in the cost of plate glass used in computing profits or losses.

[fol. 1078] Twenty-fifth Exception. To the Master's failure to conclude as a matter of law that since no selling price for defective laminated glass has been credited to the account, the defendant is not entitled to charge the cost of manufacturing defective laminated glass against the profits made by the sale of good laminated glass.

Twenty-sixth Exception. To the Master's conclusion of law that the defendant is entitled to include "Factory Operating Losses" in its costs, in computing its profits and losses.

Twenty-seventh Exception. To the Master's conclusion of law that the defendant is entitled to charge cost of infringing product returned as defective during the account-

ing period as part of its manufacturing cost in this account.

Twenty-eighth Exception. To the Master's conclusion of law that the defendant is entitled to charge the cost of the infringing product sold during the accounting period but returned as defective subsequent to the accounting period as part of its manufacturing cost in this accounting.

Twenty-ninth Exception. To the Master's failure to find that the manufacturing cost of 427,971-3 square feet of laminated glass returned by customers to the defendant, including the actual cost of one-eighth inch plate glass, plus interest on investment was $434,296.73.

Thirtieth Exception. To the Master's failure to find that the defendant is not entitled to deduct the selling price on the infringing glass returned by customers after the accounting period from the profits which accrued to the defendant during the accounting period.

[fol. 1079] Thirty-first Exception. To the Master's finding that he is unable to determine specific manufacturing costs.

Thirty-second Exception. To the Master's finding that the manufacturing cost, month by month, varied materially with different orders.

Thirty-third Exception. To the Master's conclusion of law that the nature of this accounting is such that specific selling prices cannot be compared with average monthly costs in order to distinguish loss producing sales from profit making sales.

Thirty-fourth Exception. To the Master's conclusion of law that the defendant is entitled to include the sum of $219,036.93 as "Additional Pyralin Losses" in its manufacturing cost during the accounting period.

Thirty-fifth Exception. To the Master's finding that the defendant during the accounting period operated at a net loss in the manufacture and sale of infringing product of $276,857.47.

Thirty-sixth Exception. To the Master's failure to find that the defendant during the accounting period operated

at a profit in the manufacture and sale of the infringing product of $3,124,821.62.

Thirty-seventh Exception. To the Master's failure to conclude as a matter of law that the plaintiff is entitled to recover the sum of $3,124,821.62 as profits.

Thirty-eighth Exception. To the Master's failure to find that the plaintiff suffered a damage in the amount of $127,723.13 caused by its reduction in selling prices brought about by the cut-price competition of the defendant.

Thirty-ninth Exception. To the Master's failure to find that the defendant, Pittsburgh Plate Glass Company made [fol. 1080] a profit of $2,465,562.77 on the building price of one-eighth inch plate glass to its laminated department.

Fortieth Exception. To the Master's failure to conclude as a matter of law that 20 per cent. of the selling price of the manufacturer would be a reasonable royalty under the circumstances in this case.

Forty-first Exception. To the Master's failure to conclude as a matter of law that the plaintiff is entitled to an award of not less than $1,368,160.73 as a reasonable royalty on the infringing laminated glass product manufactured by the defendant during the accounting period, in infringement of the patent in suit.

Forty-second Exception. To the Master's finding that there does not appear to have been a "very substantial demand" for laminated glass during the accounting period.

Forty-third Exception. To the Master's finding that it can hardly be said that the hypothetical questions propounded by the plaintiff conformed with the facts in the case, in so far as they assumed a "substantial demand" or an "easy market" for laminated glass.

Dated February 1, 1934.

Respectfully submitted, Brown, Critchlow & Flick, Attorneys for Plaintiff. Ambrose L. O'Shea, William B. Greeley, of Counsel.

[fol. 1081] IN UNITED STATES DISTRICT COURT

DEFENDANTS' EXCEPTIONS TO MASTER'S REPORT—Filed January 31, 1934

[References are to side folios of this Record. All other references are to pages not contained in this printed Record.]

The defendants except to the report filed herein on the twelfth day of January, 1934, by G. Dixon Shrum, Esq., Special Master, to whom this cause was referred by orders of this Court made and entered on the ninth day of December, 1929, and the fifth day of December, 1931, as follows:

1. The learned Master erred in his twenty-fifth finding of fact (p. 1047):

"25. That a reasonable royalty for the manufacture of laminated glass under the patent in suit during the accounting period was 10¢ per square foot.";

whereas he should have found (1) that the plaintiff was entitled to nominal damages only, (a) because the plaintiff, sustained by the learned Master, refused to permit the defendants to examine the books and records of the plaintiff for the purposes, among others, of showing the plaintiff's volume of business, its costs, profits, losses, rejections, returns, factory operating experience, damages from loss of sales, royalties and operating experience under its licenses to the Ford Motor Company and the Johnston Glass Company, all as more particularly requested, offered, opposed and ruled at pages 671-677, 775-776, 861, and 947-948 of the Record; (b) because, by stautory limitation (35 U. S. C. A., § 70), a reasonable royalty may be awarded only if the plaintiff's damages or the defendants' profits or losses are not susceptible of calculation and determination with reasonable certainty, both of which calculations the learned Master could and did make; (c) be-
[fol. 1082] cause a reasonable royalty is that royalty which one desiring to manufacture and sell the patented article during the accounting period would be willing to pay as a

royalty, and yet be able to make a reasonable profit (Rockwood v. General Fire Extinguisher Co., 37 F. (2d) 62, 66, certiorari denied, 269 U. S. 571), and the learned Master has found that the defendants lost money during the accounting period (Finding No. 19, p. 1047) and has refused to permit an examination of the plaintiff's books, as hereinbefore averred; (d) because no satisfactory process was in existence for the manufacture of the patented product and this had to be developed by the Ford Motor Company and Duplate Corporation at great expense and independently of the plaintiff and its patent (Wibel, 531-532; McCarroll, 549-550, 553-563; Sherts, 417-422, 429-436, 451-458; Clause, 337-342, 346-348, 370-371); (e) because the state of the art was such that neither the plaintiff, its licensees, nor Duplate Corporation could make a satisfactory product without a large percentage of defective product, resulting in rejections, replacements and returns and, as a consequence, increased sales resistance (Wibel, 532-535; McCarroll, 544-547, 549-550, 555-557; Sherts, 442-443; and Downey, 624, 627-628); (f) because the experience of the Ford Motor Company (Wibel, 528-541; McCarroll, 542-563), as licensee of the plaintiff, had been so unfortunate in the quality of the product produced as to greatly increase the difficulty of interesting the general public or the automobile companies in the use or purchase of laminated glass (Downey, 619, 624, 627-628; McLarty, 634-635; Wherrett, 867-868; Higgins, 801-803); (g) because difficulties of price due to the competition in price of the patented product with sheet and plate glass (Higgins, 789-790, 813-814, 874; Wherrett, 862; Fisher, 563-568; Downey, 619-624, 627-628), the lack of public interest in or demand for laminated glass in auto- [fol. 1083] mobiles (Edwards, 167-169; McLarty, 633-635; Higgins, 482-485; Wibel, 530; Fisher, 563-568; Downey, 619-624, 627-628; cf. Caulfield, 231-233, 306), and the unfavorable impression created upon the public by the laminated windshields on Ford cars (f, supra), and the reluctance of the automobile manufacturers to create a demand by advertising to the public the dangers inherent in the unpatented windshield and window glass (Blackmore, 606-608), there was, until created by the efforts of the defendants, practically no market for laminated glass; and (h) because the learned Master was improperly influenced by the belief that the defendants had substantially driven the plaintiff

out of business (Report, 1041-1043), a consideration which was neither correct (see fifth exception) nor relevant; or, in the alternative, (2) that in no event should a reasonable royalty exceed one-half cent a square foot (a) because the only testimony predicated upon the facts as the Master found them was to the effect that a reasonable royalty would not be in excess of one-half cent per square foot (Harness, 574 to 596; and Blackmore, 596 to 614), after giving due consideration to the supposed advantages to the plaintiff of its license to the Ford Motor Company, as enumerated at pages 1039-1040 of the Master's report (Harness, 578, 592, 595-596; Blackmore, 596); (b) because the learned Master appears to have given no consideration to the fact that the patent expired on May 9, 1933, an important factor (Harness, 584); (c) because the recommended reasonable royalty is improperly predicated in part upon plaintiff's testimony concerning a license to the Johnston Glass Company (Exhibit 24; and Haskell, 199), inasmuch as (i) that license covered eight patents, and contained covenants concerning volume and price of sales not comparable to the instant case, and (ii) there was no testimony of sales or [fol. 1084] royalties under that license other than that they were small (Haskell, 199), which the Master recognized as unsatisfactory at page 1030 of his report; (d) because the recommended reasonable royalty is twice as high as royalty paid by the Ford Motor Company on nine patents, including the one in suit, and two trade-marks (Exhibit "A"), and because this royalty paid by the Ford Motor Company also included free license for one-half of the licensee's requirements and a manufacturer's profit (Master's report, 1030), which, when segregated, leaves no more than one-half cent a square foot as royalty (Harness, 584-587, 595-596; Blackmore, 602-604, 613-614); (e) because the recommended reasonable royalty is predicated in part upon the Master's twenty-fourth finding of fact to the effect that the plaintiff at the time the infringement began had established a market for laminated glass, while the Master's report (pages 1036-1042) shows that the market thus established was trifling in size, and all of the testimony is to the same effect (Edwards, 167-170; Caulfield, 231-233, 243, 306-308; Haskell, 191-192, 194-195; Hunt, 202; Higgins, 482-487, 789-790, 803-805, 813-814, 874-877; Wherrett, 862, 867-868; Wibel, 529-531; Fisher, 563-568; Downey, 617-628;

McLarty, 633-635, 637). The Master's discussion is found at pages 1034-1043 of his report.

2. The learned Master erred in his eighteenth conclusion of law (p. 1049):

"18. That plaintiff is entitled to an award of $414,120.70 as royalty on the infringing laminated glass manufactured by defendant during the accounting period in infringement of the patent in suit.";

whereas he should have ruled, on the basis of the reasons given in support of the first exception, that the plaintiff was entitled to nominal damages only.

[fol. 1085] 3. The learned Master erred in refusing defendants' application to examine the books and records of the plaintiff, said ruling being as follows (R. 775-776):

"The Master: Defendant's application to examine the books and records by accountants employed by defendants as read into the record on Tuesday morning by Mr. Smith, covering all details in connection with the matters mentioned in said application, is refused and the defendant is ordered to proceed at once with its case.";

and repeated at page 948; whereas the Master should have permitted this examination for the purposes enumerated in the offer at pages 671-676 (and see pages 947-948, 861), the examination being material on the questions of (1) whether a reasonable royalty should be awarded, and, if so, how much, inasmuch as the examination would have disclosed plaintiff's volume of business, its costs, profits, losses, rejections, returns, factory operating experience, damages from loss of sales, royalties and operating experience under its licenses to the Ford Motor Company and the Johnston Glass Company, (2) whether the plaintiff suffered damage in the competition of Duplate Corporation, and, if so, its extent, and (3) the propriety of Duplate Corporation's items of expense which are challenged by the plaintiff, inasmuch as it would show that the plaintiff had comparable losses.

4. The learned Master erred in his twenty-fourth finding of fact (p. 1047):

"24. That the plaintiff, at the time the infringement began, had established a market for laminated glass.";

whereas he should have found, in accordance with pages 1036-1043 of his report, that the plaintiff had not established a substantial market for laminated glass (Edwards, [fol. 1086] 167-170; Caulfield, 231-233, 243, 306-308; Haskell, 191-192, 194-195; Hunt, 202; Higgins, 482-487, 789-790, 803-805, 813-814, 874-877; Wherrett, 862, 867-868; Wibel, 529-531; Fisher, 563-568; Downey, 617-628; McLarty, 633-635, 637), and that the task of doing so was inherently difficult (Blackmore, 606-608). The learned Master's discussion is found at pages 1036-1041 of his report.

5. The learned Master erred in the following portion of his report (pp. 1041-1042):

"When defendant entered the field it established prices considerably lower than those of the plaintiff, which naturally led considerable business to leave the plaintiff and go to the defendant, and also caused a reduction in the plaintiff's selling prices. While the Master has not been able to approximate, mathematically, what sales were lost by the plaintiff on account of the infringement, he is satisfied that the price policy of the defendant substantially drove the plaintiff out of the laminated glass business, and that, although other companies were engaged in the laminated glass business, their competition in the manufacture of laminated glass for automobiles was negligible.";

whereas he should have said (1) that the plaintiff's business, except that under its license to the Ford Motor Company, was inconsiderable in extent (Report, 1036-1039; Caulfield, 231-233, 306-308; Downey, 616; Higgins, 876-877), (2) that the portion of it which shifted from the plaintiff to the Duplate Corporation (and this did not include the Ford Motor Company business) could not have been held by the plaintiff in any event, both because of the attitude of the automobile manufacturers toward the plaintiff's prices (Fisher, 564-566; Downey, 618-628; Higgins, 482-488, 789-792), and because of the competition of third parties [fol. 1087] (Haskell, 198; Wherrett, 868; Higgins, 794-795, 802-809), whose competition was formidable, and was, in one instance, that of a company whose volume of sales exceeded that of Duplate Corporation for the latter portion

of the accounting period (Higgins, 809-810) and which initiated most of the price reductions (Wherrett, 868; Higgins, 794-795), and (3) that there was no evidence that the plaintiff quit business for any reason except that it obtained a satisfactory price for its assets (McHenry, 666-671), and still less is there any evidence that the defendants drove the plaintiff out of the laminated glass business.

6. The learned Master erred in his second conclusion of law (p. 1047):

"2. That Pittsburgh Plate Glass Company is entitled to credit for only the manufacturer's cost of the one-eighth inch plate glass used by it, or sold by it to and used by Duplate Corporation, in making laminated glass in infringement of the patent in suit.";

whereas he should have ruled that the defendants were entitled to credit for the purchase price paid by Duplate Corporation to Pittsburgh Plate Glass Company for one-eighth inch plate glass used in making laminated glass in infringement of the patent in suit (1) because the Pittsburgh Plate Glass Company was not called upon under the interlocutory decree of this Court dated December 5, 1931, to account for any profits, gains or advantages other than those accruing to it in the manufacture of infringing laminated glass; (2) because the plate glass, admittedly sold by the Pittsburgh Plate Glass Company to Duplate Corporation at the prevailing market price or below it (McHenry, 60; Higgins, 805-806; Wherrett, 866-867), being a marketable commodity (Master's report, 1055, 1063; Higgins, 474-482, 486-496; cf. report, 1006-1007), in which the plaintiff had no patent [fol. 1088] right or other interest, should be charged into the account of the defendant Duplate Corporation at the market price thereof or the price paid by Duplate Corporation to Pittsburgh Plate Glass Company therefor, depending upon which was lower (Barber Asphalt Paving Co. v. Standard Asphalt & Rubber Co., 30 F. (2d) 281, 284, certiorari denied, 278 U. S. 659); (3) because Duplate Corporation could not be compelled to take the cost of plate glass to the Pittsburgh Plate Glass Company as its cost in this accounting without disregarding the separate corporate entities of the two companies, and this could not be done because (a) Duplate Corporation was owned in equal shares by Pittsburgh Plate Glass Company and du Pont

Viscoloid Company (Master's report, 1001-1002; trial stipulation, 25; Clause, 391; McHenry, 55), (b) the management of Duplate Corporation was equally divided between the two stockholders (McHenry, 60-64, 79-80; Exhibit 21), and (c) separate books were kept by all three companies (McHenry, 64-78, 80-82); (4) because he erroneously assumed (Report, 1055), without supporting testimony, that the Pittsburgh Plate Glass Company would have lost plate glass sales had not Duplate Corporation manufactured laminated glass, whereas uncontradicted subsequent testimony was to the effect that sales of laminated glass by Duplate Corporation were simply replacing sales of plate glass by Pittsburgh Plate Glass Company, and had sales of laminated glass not been made by Duplate Corporation the Pittsburgh Plate Glass Company would have sold plate glass to the same customers in the same amounts, with but possibly one exception (Wherrett, 868-869; Higgins, 808-810), and it is undisputed that the Pittsburgh Plate Glass Company did and would have sold plate glass to third parties manufacturing laminated glass (Higgins, 487-490; Edwards, 159-161; apparently conceded in Master's report, [fol. 1089] 1055), as it is likewise established that laminated glass was being sold by Duplate Corporation because of the sales efforts of its sales agent, Pittsburgh Plate Glass Company, and not because of the plaintiff or because of the intrinsic merit of the product (Higgins, 482-487, 789-790; Fisher, 564-565; Downey, 620-621, 826-828); (5) because in assuming (Report, 1058-1059) that unless he allowed plate glass profits to the plaintiff it would be possible for an infringer to sell a patented article at a loss and make up its profit on the marketable unpatented raw material, he ignored the undisputed testimony, both before and after his ruling, to the effect that the defendants were doing no such thing in the instant case, but were rather selling the infringing product at the best obtainable price (Higgins, 789-790, 792-794, 804-805, 822-823, 482-487; Fisher, 564-566; Downey, 619-623, 626-628; McLarty, 629-631, 634-635; cf. Edwards, 168-169) and a later ruling by the Master (595) was predicated on this position; (6) because the plate glass of the Pittsburgh Plate Glass Company was manufactured under twenty-six patents (Clause, 748-768), in none of which the plaintiff had an interest; and (7) because the owner of a patent is not entitled to recover profits resulting

only indirectly from infringement. The argument of the learned Master in support of his ruling is found at pages 1006-1010 of his report and in Appendix "A" thereto.

7. The learned Master erred in entering the following order (R. 527):

"On application of the plaintiff for order on the defendant, Pittsburgh Plate Glass Company, requiring it to file an additional account showing its costs of glass used by it and its co-defendant, Duplate Corporation, in the manufacture of non-shatterable glass, it is ordered that the defend- [fol. 1090] ant file such an account with the Master within four weeks from the date of the decision of the Court, in the event that the Court shall decide that such an account shall be filed.";

pursuant to which, this Court on June 10, 1932, ordered such an account to be filed, without prejudice to the ultimate determination of its final accounting liability; whereas the learned Master should have ruled that such an account need not be filed for the reasons enumerated in the sixth exception.

8. The learned Master erred in his nineteenth finding of fact (p. 1047):

"19. That defendant, during the accounting period, operated at a net loss in the manufacture and sale of the infringing product of $276,857.47.";

whereas he should have found (1) that, for the reasons enumerated in the sixth exception, the defendant Duplate Corporation during the accounting period suffered a further net loss of $712,998.65 (computed by contrasting the computation based on sales price, as set forth in the contested items in Appendix "B," page 1, of the Master's report, with his allowance appearing on page 2 of the same appendix) in the manufacture and sale of the infringing product, this additional loss representing the spread between the so-called manufacturer's cost of the plate glass sold by the Pittsburgh Plate Glass Company to Duplate Corporation and the sales price at which this plate glass was sold by Pittsburgh Plate Glass Company to Duplate Corporation; (2) that if the foregoing portion of this exception is disallowed, he should have given Duplate Cor-

poration an additional credit of $318,403.33, representing loss to the Pittsburgh Plate Glass Company in selling expense over and above commissions received from Duplate Corporation (Exhibit "BB"; McHenry, 783-785, 837-840, [fol. 1091] 919-929, 933-938; see Master's discussion at p. 1014 of his report); and (3) regardless of the ruling on the foregoing portions of this exception, he should have allowed as an additional item of expense the sum of $72,060.42, which represented, as he found (Report, p. 1005), loss suffered by Duplate Corporation after the accounting period in reimbursing distributors for making replacements of defective laminated glass manufactured during the accounting period and guaranteed as to quality by the defendants (Exhibit "X"; McHenry, 777-780, 884-886, 891-901, 929-933). His rejection of this loss appears at page B-2 of his report.

9. The learned Master erred in his third finding of fact (p. 1044):

"3. That the defendant was advised by patent counsel that if it dehydrated its gelatin by means of a dehydrating agent so as to leave it substantially free from moisture, it would infringe.";

whereas he should have found that the defendants were advised by patent counsel that they did not dehydrate their gelatin by means of a dehydrating agent (Master's report, 1002; Bradley, 825-836, and particularly 828-830) and that, as a consequence, they were advised that they did not infringe the plaintiff's patent. The learned Master's discussion and finding of good faith is found at pages 1002-1003 of his report. See also Finding No. 4 and Conclusion No. 1 (Report, 1044, 1047).

10. The learned Master erred in his twenty-first finding of fact (p. 1047):

"21. That plaintiff had the manufacturing facilities, personnel, and capital to handle the sales made by Duplate Corporation, as well as its own.";

[fol. 1092] whereas he should have found that the plaintiff did not have the manufacturing facilities, personnel or capital to handle the sales of infringing products made by Duplate Corporation, as well as its own (Haskell, 185;

Caulfield, 229-232, 306; McCarroll, 544-547, 549-550, 561-563; Wibel, 532-534; cf. Clause, 324-325; Sherts, 412-414). The learned Master's discussion is found at page 1031 of his report.

11. The learned Master erred in his twenty-second finding of fact (p. 1047):

"2. That the plaintiff suffered a loss of $2,807.89 due to price reductions forced upon it by the price policy of the defendant.";

whereas he should have found (1) that the plaintiff failed to prove (Exhibit 28; Caulfield, 304-305; Edwards, 165-167; Haskell, 179-180; Exhibits 11-14) any loss suffered by it due to price reductions forced upon it by the price policy of the defendants; (2) that even if the plaintiff established a loss, it appears that it was brought about by the competition of third parties (Haskell, 198; Wherrett, 868; Higgins, 794-795, 808; Judson, 149) and by the attitude on prices of the purchasing automobile companies (Fisher, 563-566; Downey, 618-624; Higgins, 482-487, 788-793); and (3) that the plaintiff, as a matter of law, was not entitled to both an award of damages for reduction in selling price and an award of a reasonable royalty. The learned Master's discussion is found at pages 1031-1034, and his computation is in Appendix "D" to his report.

12. The learned Master erred in his seventeenth conclusion of law (p. 1049):

"17. That plaintiff is entitled to an award of $2,807.89 due to price reductions forced upon it by the infringement.";

[fol. 1093] whereas he should have ruled, for the reasons set forth in the eleventh exception, that the plaintiff was not entitled to an award of any sum for damages due to price reductions forced upon it by the infringement.

William Watson Smith, Leon E. Hickman, Smith, Buchanan, Scott & Gordon, Solicitors for Defendants.

January 31, 1934.

IN UNITED STATES DISTRICT COURT

NOTICE AND MOTIONS FOR JUDGMENT—Filed March 27, 1934

Please take notice that on the pleadings, proof, testimony and exhibits, the report of the Master, G. Dixon Shrum, filed herein on or about the twelfth day of January, 1934, and all other papers and documents in this case, this Court will be moved at a term thereof, to be held at the General Post Office Building, in the City of Pittsburgh, State of Pennsylvania, on Tuesday, April 3, 1934, at ten o'clock in the forenoon of that day, or as soon thereafter as counsel can be heard:

(1) That the exceptions to said report of said Master filed by the defendant herein, and each and all of them, be overruled.

(2) That the exceptions to said report of said Master filed by plaintiff herein, and each and all of them, be allowed.

(3) That the profits stated by the Master in his said report, as changed or amended by this Court, be awarded to the plaintiff and/or that the damages stated by the Master and as changed or amended by this Court, be increased [fol. 1094] to not exceeding three times the amount as so fixed by this Court.

(4) That the amounts paid to the Master by the plaintiff as a fee for his services, and the amounts paid to the stenographer for furnishing the Master with the transcript of the testimony, be allowed to the plaintiff as costs.

(5) That interest be allowed the plaintiff on the profits and/or damages from the end of each year of the accounting period.

(6) For final judgment herein with costs and disbursements against the defendant and for such other and further order, judgment and relief as to the Court may seem just and equitable.

Dated Pittsburgh, Pa., March 17, 1934.

Brown, Critchlow & Flick, Attorneys for Plaintiff.
First National Bank Bldg., Pittsburgh, Pa.

IN UNITED STATES DISTRICT COURT

MOTION TO DISMISS PLAINTIFF'S EXCEPTIONS—Filed April 3, 1934

To the Honorable the Judges of said Court:

And now, this third day of April, 1934, come the defendants by Smith, Buchanan, Scott & Gordon, their solicitors, and move to dismiss the plaintiff's exceptions to the report of the Master in the above case on the ground that said exceptions are unfounded and insufficient, both in form and substance.

Smith, Buchanan, Scott & Gordon, Solicitors for Defendants.

[fol. 1095] IN UNITED STATES DISTRICT COURT

OPINION ON DEFENDANTS' APPLICATION FOR A REVIEW OF AN INCIDENTAL RULING OF THE SPECIAL MASTER IN THE ACCOUNTING PROCEEDING—Filed June 10, 1932

SCHOONMAKER, J.:

This is a patent-infringement case which was referred by this court to a special master by an interlocutory decree, dated December 9, 1929. The case thereupon proceeded before the master by the taking of testimony which elicited certain facts. In view of the facts educed before the master, the plaintiff filed a supplemental bill against the defendant, Pittsburgh Plate Glass Company, charging that Duplate Corporation, the defendant in the original bill, was a mere form behind which the supplemental defendant, Pittsburgh Plate Glass Company, accomplished its infringement, and praying that the Pittsburgh Plate Glass Company be adjudged responsible for the doings and acts of Duplate Corporation, and be compelled to account for and pay to the plaintiff all profits, gains, and savings made by the said Pittsburgh Plate Glass Company and the actual damages suffered by the plaintiff from the infringement by Pittsburgh Plate Glass Company. (Plaintiff's Master's Exhibit 29.)

Pittsburgh Plate Glass Company duly answered said supplemental bill, and in due course a supplemental interlocu-

tory decree on said supplemental bill and answer was entered.

The said supplemental decree, dated December 5, 1931, among other things, ordered and decreed that the plaintiff recover from Pittsburgh Plate Glass Company "the profits, gains, and advantages which the said supplemental defendant has received or made, or which have accrued to it from its said infringement of said Letters Patent, together with the damages suffered by the said plaintiff from such in-
[fol. 1096] fringement," and decreeing further that Pittsburgh Plate Glass Company shall be jointly and severally liable for any and all recoveries adjudged against Duplate Corporation by way of profits, damages, costs, or otherwise.

The said supplemental interlocutory decree further ordered that the special master theretofore appointed by this court in the accounting proceeding then pending before him should "ascertain, take, state, and report to this court an account of the gains, profits and advantages which the defendant, Pittsburgh Plate Glass Company, has received or which have accrued to it from said infringement upon the exclusive rights of the plaintiff under claim 12 of said letters patent, and also all damages which the plaintiff has suffered because of the said supplemental defendant's infringement upon claim 12 of said letters patent of the United States No. 1,182,739."

The said supplemental interlocutory decree further ordered that in the accounting then being proceeded with, the plaintiff should have the right to examine the "officers, servants, agents and employees of Pittsburgh Plate Glass Company and also to cause the production and examination of the books, vouchers, records and documents of the defendant, Pittsburgh Plate Glass Company," and that the plaintiff "shall have the necessary process of the court to compel such attendance and production of books, vouchers, records and documents of said defendant, Pittsburgh Plate Glass Company, before the master at such times and places as the master shall from time to time direct."

The master then proceeded with the accounting and came to a point where he directed the defendant, Pittsburgh Plate Glass Company, to file an account revealing its profits on one-eighth-inch plate glass sold to the defendant, Duplate Corporation, during the infringing period.

[fol. 1097] The Pittsburgh Plate Glass Company took ex-

ception to this order, and now asks the court to pass on the question of its liability to account for these profits, before proceeding further with the accounting before the master. This is an unusual request.

The usual and orderly way to present the questions here raised is upon the exceptions to the master's report at the conclusion of the accounting, unless there be a case of extreme hardship to a defendant, which might cause the court to review an incidental ruling of a special master. The rule and test to be applied in such cases is well stated by District Judge Wallace in Welling v. LaBau, 32 Fed. 293 (295), as follows:

"The practice which has been pursued here is not to be commended. The regular and orderly way to test the question of the extent of the defendant's infringement, is upon exceptions to the master's report at the conclusion of the accounting. It is only in a case of extreme hardship to a defendant that the court should be asked to review an incidental ruling of the master, in the course of the accounting, which can be reviewed upon exceptions to his report. There was enough here, probably, to justify the attempt which has been made, but the hardship to the defendant is a less evil than the danger of reaching a wrong decision upon the merits. It is more judicious to require the accounting to proceed in the ordinary way. When the master's report is made, if it is excepted to, his findings of fact will appear, and the court can review them intelligently, and with a stronger probability of reaching a correct result than is now possible."

This appears to be in accordance with the practice in this Circuit: Hoe v. Scott, 87 Fed. 220 (CC. D. N. J. Kirkpatrick, D. J.); Rollman Mfg. Co. v. Universal Hdwe. Co., 218 Fed. 651 (653).

We have carefully reviewed the proceedings before the master, and can see no extreme hardship imposed upon the [fol. 1098] Pittsburgh Plate Glass Company in requiring them to show the cost of the plate glass that went into the infringing structure. We can see how that item might be a very necessary factor in determining the accounting liability of the Pittsburgh Plate Glass Company in the infringing transaction, especially in view of the testimony before the master that the Duplate Corporation sold the in-

fringing product at much below cost, if in computing the cost, one took the cost price of the glass at its invoice from the Pittsburgh Plate Glass Company.

We do not pass any judgment now on the exception made by the Pittsburgh Plate Glass Company as to its final accounting liability, but shall leave that question open for a full and careful consideration when we get the completed report of the master.

In the meantime, the Pittsburgh Plate Glass Company will comply with the accounting order of the special master.

Let an order be submitted, denying the Pittsburgh Plate Glass Company's application, without prejudice to its right to renew the same on the filing of the report of the special master.

IN UNITED STATES DISTRICT COURT

ORDER DENYING APPLICATION FOR REVIEW OF INCIDENTAL RULING OF MASTER—Filed June 22, 1932

This cause having come on to be heard, it is

Ordered that the application of Pittsburgh Plate Glass Company for a review of the incidental ruling of the Special Master in the accounting proceeding, calling on the Pittsburgh Plate Glass Company to submit the cost of its one-eighth-inch plate glass be and the same is hereby denied without prejudice, however, to the rights of the Pittsburgh Plate Glass Company and/or Duplate Corporation, and [fol. 1099] each of them, to file such exceptions as they, or either of them, may be advised to the whole or any part of any final report of the Master.

Dated June 22, 1932.

By the Court, U. S. D. J.

Approved as to form this twenty-first day of June, 1932.
Marshall A. Christy, Solicitor for Defendants.

IN UNITED STATES DISTRICT COURT

OPINION ON DEFENDANTS' PETITION WITH RESPECT TO PRODUCTION AND EXAMINATION OF CERTAIN BOOKS AND RECORDS OF PLAINTIFF—Filed October 21, 1932

SCHOONMAKER, J.:

This case is now before the court on defendants' petition for an order directing the master before whom the case is pending, to order the plaintiff to produce its books and records for examination by the defendants. The defendants presented this application to the master, who denied it.

This is an accounting proceeding in a patent case. The special master has not filed any report therein. We have no request from him for a special review of this ruling. As we pointed out in an opinion filed in the instant case on June 9, 1932, the court ought not to be asked to review an incidental ruling of a special master, except in a case of extreme hardship to a defendant.

[fol. 1100] We cannot find that the refusal of the special master to require the plaintiff to submit its books for examination by defendants, presents such a case of extreme hardship as would require us to rule at this time on the correctness of the special master's action. We could not, at this time, pass upon this ruling intelligently without carefully reading and considering all of the testimony thus far taken before the special master, in order to determine whether or not anything of evidential value in this case could be found in the plaintiff's books. We can conceive that, if the plaintiff had offered evidence in the case showing loss of profits in its business as an element of damage to be recovered in this case against the defendants, an examination of plaintiff's books, in order to determine the accuracy of the computation of plaintiff's profits, might be proper.

We can, however, see no hardship in letting this matter rest until the final report of the special master. If his report is then excepted by the defendants in this particular, we could then more readily and properly pass on the exception, having before us the complete report of the special master, and the evidence taken before him. If we then find the master to have been in error in not permitting defendants to examine the plaintiff's books, the case could then be referred back to the special master to take further testimony. We cannot see that this will entail undue hardship on the defendants.

The defendants' petition will be denied at this time, without prejudice, however, to the right of defendants to raise the same question by exception to the master's report.

An order may be submitted accordingly.

[fol. 1101] IN UNITED STATES DISTRICT COURT

ORDER DENYING PETITION FOR ORDER DIRECTING PLAINTIFF TO PRODUCE CERTAIN BOOKS AND RECORDS—Filed October 31, 1932

This case having now come before this Court on defendants' petition for an order directing the Master before whom this case is pending to order the plaintiff to produce its books and records for examination by the defendants; it is

Ordered and adjudged that the defendants' petition be and the same is hereby denied, without prejudice, however, to the right of defendants to raise the same question by exception to the Master's final report.

Dated: October 31, 1932.

F. P. Schoonmaker, U. S. D. J.

Service of a copy of the foregoing order is hereby acknowledged this twenty-ninth day of October, 1932. Approved as to form.

Marshall A. Christy, Solicitor for Defendants.

[fol. 1102] IN UNITED STATES DISTRICT COURT

OPINION (1) ON EXCEPTIONS TO THE MASTER'S REPORT; (2) ON THE PLAINTIFF'S MOTION TO ASSESS INTEREST ON THE DAMAGE AWARD; (3) ON PLAINTIFF'S MOTION TO ASSESS THE COSTS OF REFERENCE TO DEFENDANTS—Filed May 1, 1934

SCHOONMAKER, J.:

This case now comes to the court: (1) On exceptions to the final report of the master, G. Dixon Shrum, Esq., appointed to take and state an account of the profits derived and the damages sustained by the plaintiff by reason of infringements by defendants of Letters Patent 1,182,739, for the manufacture of strengthened glass; (2) On the motion of the plaintiff to assess interest on the damages allowed; and (3) On the plaintiff's motion to assess against the defendants the cost of reference to the special master.

Two decrees were entered in this case: One on December 9, 1929, against the defendant Duplate Corporation, the original defendant in this suit for the infringement of the patent; and the other on December 5, 1931, against the Duplate Corporation and the Pittsburgh Plate Glass Company, the latter company being brought into the case on supplemental bill charging the Pittsburgh Plate Glass Company to be a contributory infringer.

This decree of December 5, 1931, held that both defendants were jointly and severally liable to account for the costs, profits, and damages arising from infringement of this patent.

The master found that the defendants had received no profits out of the manufacture and sale of infringing glass, showing by Appendix B attached to his report under heading "Statement of Account Per Finding of Special Mas- [fol. 1103] ter," a net loss to the defendant on the sale of infringing glass of $276,857.47. The master did find, however, that the plaintiff had suffered damage, and assessed the same on the basis of a royalty of 10c per square foot on the infringing laminated glass, the total amount being $414,120.70. In addition to that, the master found that the plaintiff had suffered damage in the sum of $2,807.89 due to price reductions forced upon the plaintiff by the infringement of the patent in suit. This makes the total award of damage $416,928.59.

Both the plaintiff and the defendants have filed exceptions to this report.

The plaintiff's exceptions are forty-three in number. The defendants have moved to dismiss them, because it is alleged that they do not conform to the proper equity practice, in that they are general assignments of error without specific reference to what the master should have found in lieu of the findings complained of.

The exceptions, as filed by the plaintiff, do not seem to meet the requirement laid down by the Supreme Court in Sheffield and Birmingham Coal, Iron and Railway Company v. Gordon, 151 U. S. 285, 289, 291. But as plaintiff's counsel in their argument in support of these exceptions largely raise only questions of law as to the proper method of computation of the profits and loss and of damages arising out of the sale of infringing glass, we will deny this motion to dismiss.

These forty-three exceptions filed by the plaintiff raise, as we look at it, practically three questions: (1) Are the defendants wilful and deliberate infringers; (2) Did the master adopt and use in his statement of profits on the sale of infringing glass a proper basis for computing the cost of manufacture and the deductions that the defendants should be permitted to make in computing profits; (3) Did the master correctly compute the general damages awarded to the plaintiff.

[fol. 1104] The defendants' exceptions are twelve in number, and relate largely to the damage items awarded to the plaintiff, it being the contention of the defendants that the evidence in this case before the special master would only justify the award of nominal damages.

The question of wanton and deliberate infringement we must resolve in favor of the defendants. It appears by the evidence that the defendants had notice of the plaintiff's patent and took the advice of legal counsel who not only examined the plaintiff's patent, but the plaintiff's process in the manufacture of laminated glass, after which defendants' counsel gave to the defendants his legal opinion that their method of manufacturing strengthened glass did not infringe the plaintiff's patent. We find nothing in the evidence which impugns the good faith of the defendants in seeking the advice of their counsel or the good faith of counsel in studying the plaintiff's process to determine whether there was infringement. In that we are satisfied that both defendants and their counsel were acting in good faith in the matter of infringement and in believing that their process did not infringe the plaintiff's patent. We conclude therefore that the defendants were not wilful and deliberate infringers.

We go next to the master's computation of profits and losses. There seems to be no dispute in the case over the correctness of the computation of the amounts; there is no dispute over the correctness of the figures. The dispute is over the question of whether items deducted are properly and legally allowable as deductions from the sale-price, in order to determine profits. The plaintiff's objection to these deductions allowed by the master may be grouped and discussed under the heads: (a) Comparisons of average costs and specific selling prices; (b) Factor-operating losses (rejects and returns); (c) Additional

pyralin losses; (d) Allowance for use of defendants' patents; (e) Special cutting losses; (f) Federal income tax; [fol. 1105] (g) Selling commissions; (h) Interest on investment.

(a) Comparison of Average Costs and Specific Selling Price.—The master found that this was not a case in which it would be permissible to state an account of profits by offsetting the monthly average costs per square-foot unit against the price, for which the glass was sold. We agree with the master in his conclusions that the profits of the infringing sales are not to be computed in the way contended by the plaintiff. To determine truly the profits or losses, sales-prices must be compared with specific costs of items of manufacture of the infringing article. The defendants were engaged in a regular and continuous business during the period of these operations in the manufacture of infringing glass. In this continuous business, the infringing glass cannot be treated separately.

We believe Judge Thomson of this court, in MacBeth Evans Glass Co. v. L. E. Smith Glass Co., 21 Fed (2) 553, 555, thus correctly stated the rule to be applied to infringements of this character. This opinion of Judge Thomson was approved by the Circuit Court of Appeals of this Circuit in MacBeth-Evans Glass Co. v. L. E. Smith Glass Co., 23 Fed. (2) 459.

(b) Factory-Operating Losses—(Rejects and Returns).—The master has found that a considerable amount of laminated glass had to be turned out only to be rejected or returned in order that a certain volume of perfect specimens might be sold, and has allowed these rejects and returns as operating losses unavoidably connected with the manufacture of good finished product, and as necessary elements in the cost of production of a good product. We agree with the master in his conclusion, and in so doing, we are again following Judge Thomson in the conclusion announced by him in MacBeth Evans Glass Co. v. L. E. Smith, 21 Fed. (2) 553, where Judge Thomson held in [fol. 1106] a glass-lens case that credit must be given as a part of the cost of manufacture, for defective-lenses, loss from bad debts, discounts, and allowances reasonably incident to the business in order that the defendants be charged only with the profits actually made.

Cases cited for the plaintiff in opposition to these cases we do not think are controlling, because they hold merely that an unsold inventory at the end of the accounting period cannot be taken as a loss in the manufacturing loss in accounting. In a case where there is a series of isolated infringements, loss-producing sales cannot be deducted from profits in the accounting on the sales where there were profits made; and losses on experimental products cannot be deducted in accounting. We recognize the correctness of the rule in these cases; but we think they have no application to the facts of the instant case, where the defendants are only seeking credit for losses actually accruing, while the infringing product is being manufactured in the carrying on of a continuous business.

(c) Additional pyralin losses.—The contention of the plaintiff cannot be sustained as to this item. The objection is made, as we view it, in line with the position that the defendants are entitled only to the cost of the elements entering into profitable sales. We have already pointed out, in our view of this continuous business that such an arrangement cannot be properly made in this case, for the pyralin that was used in glass that did not turn out perfectly was as much a cost of production as any other part of the factory operation.

(d) Allowance for use of Patents.—The defendants, in the manufacture of laminated glass, used in their process of producing glass that entered into the laminated prod- [fol. 1107] ucts, some twenty-six patents of their own. The master has made allowance in this accounting for the use of these patented processes. The plaintiff objects to this allowance, because it is urged that laminated glass is so unique that the plaintiff's patent practically contributed everything to the salability of the products, and that the defendants' patent had nothing to do with it. We have reviewed the evidence on this subject, and we are of the opinion that the master correctly ruled the case. It appears to us from the testimony that the defendants' patented process was a very large factor in the saving of manufacturing costs which would permit the sale of laminated glass in competition with other glass. During the infringing period, laminated glass was competing with ordinary plate-glass windshields, and must of course be offered

to the market at a price which would make them salable in comparison with ordinary plate-glass. If the defendants had been paying royalty on these twenty-six patents that were involved in their process of manufacture, that payment, of course, would have been an allowable deduction. We can see no distinction if they themselves happened to own the patents. We believe they should be entitled to a reasonable royalty-allowance on account of their patents. The findings of the master in this regard are approved by the court.

(e) Special Cutting Losses.—This special cutting loss allowed by the master arose from the adjustment necessary to translate the average profit on ⅛" plate-glass into the specific profit realized by the Pittsburgh Plate Glass Company on its sales to the Duplate Corporation, as the master found. The glass furnished by the Pittsburgh Plate Glass Company to the Duplate Corporation for the manufacture of infringing glass resulted in unusual cutting losses in view of the fact that the orders of [fol. 1108] the Duplate Corporation were confined almost entirely to windshield size. We believe the master has correctly ruled on this phase of the controversy, because of the fact that the orders from the Duplate Corporation to the Pittsburgh Plate Glass Company were for quantities of glass of one size, with the result that there were additional cutting losses in cutting glass of this size out of the original sheets. We shall confirm the master in this ruling.

(f) Allowance for Federal Income Tax Actually Paid.—The plaintiff argues that the income tax actually paid by the defendants should not be allowed, because the defendants were deliberate infringers. On this objection we have already ruled that the defendants are not deliberate infringers. The next argument advanced by the plaintiff against the allowance of this item is the fact that a special cutting loss and interest on the investment were not taken into consideration in the computation of the tax. We do not think we can properly go into that. The tax actually paid, whatever the method of computation by the Government, enters into the determination of profits and losses. As Judge Woolley pointed out in MacBeth v. L. E. Smith Glass Company, 23 Fed. (2) 459, 463, a book profit is not a

profit actually made when the Government takes a part of it as a tax. In this allowance, we concur in the master's ruling.

(g) Selling Commission.—The infringing laminated glass was sold by the defendant, the Pittsburgh Plate Glass Company, at a commission of 5 per cent. on the sales in a period up to January 1, 1929, and 3 per cent. thereafter. These commissions computed at that rate amount to $220,742.95. The plaintiff's attack on the allowance of these commissions seems to be based on the theory that the Pittsburgh Plate Glass Company and the Duplate Corporation are one and the same corporation. Therefore, the [fol. 1109] Pittsburgh Plate Glass Company should not be allowed a commission. The facts of this case, as we view it, do not show that situation. The Duplate Corporation was the corporation engaged in the manufacture of this laminated glass. The glass that entered into the product was furnished by the Pittsburgh Plate Glass Company, which owned 50 per cent. of the capital stock of the Duplate Corporation. The DuPont Viscoloid Company furnished the pyralin that entered into the laminated product, and owned 50 per cent. of the capital stock of the Duplate Corporation. The Pittsburgh Plate Glass Company sold the finished laminated product, and were very properly allowed the commission for that service. The amount seems to be reasonable, and the selling cost we think was a proper item entering into the computation of profits. If there were other sales agents, they would have had to spend that amount at least in the sale of the laminated profits. We shall approve the master's allowance.

(h) Interest on Investment.—The question here involved is whether or not under the facts of this case the master was correct in his conclusions of law to the effect that the defendants are entitled to allowance for interest on investment. We think the facts of this case do not justify us in holding that the defendants have forfeited the right to interest on the investment. They were not deliberate infringers; and we believe that under the ruling authorities they are entitled to a reduction of profits by allowance of interest on invested capital. We confirm the master's ruling in this regard.

This disposes of all the objections and exceptions made

by the plaintiff in regard to profits and losses in this case.

We now proceed to pass on the question of damages as allowed. Both parties are dissatisfied with the damage [fol. 1110] awarded by the special master. We have carefully reviewed the master's findings and the evidence upon the subject of general damage. We have come to the conclusion that he is right in his holdings as to the damage-items. We confirm his award on his findings. It seems to use that the reasonable royalty found by the master is adequate and justified by the evidence.

On plaintiff's motion to assess costs and provide for interest on the award, the plaintiff having prevailed before the master, we are of the opinion that as a matter of course the costs of the accounting must be assessed against the defendants. The decree will so provide.

On the subject of interest, we believe the correct and proper ruling would be to allow interest on the award of damages from the date that the infringement ceased: Motor Player Corporation v. Piano Motors Corporation, 19 Fed. (2) 993. The decree may so provide.

The exceptions, therefore, both of the plaintiff and of the defendants to the special master's report will be overruled, and the report confirmed absolutely. A decree in accordance with this opinion may be submitted.

IN UNITED STATES DISTRICT COURT

SUPPLEMENTAL OPINION ON SPECIAL MASTER'S REPORT—
Filed June 28, 1934

SCHOONMAKER, J.:

On further consideration of the Master's report and consideration of memorandum and letters submitted by counsel for both parties, we are convinced that we were in error in awarding to plaintiff both $414,120.70 as a reasonable royalty and $2807.89 as specific damages due to reduced selling price.

[fol. 1111] Further consideration leads us to the conclusion that the adoption of a reasonable royalty as a basis of recovery precludes the possibility of any further award. Egry Register Co. v. Standard Register Co., 23 Fed. (2d) 438.

We therefore amend our former opinion to this extent and sustain defendants' exception No. 11 to the extent of the award of $2807.89 as specific damages due to reduced selling price in addition to award of a reasonable royalty.

IN UNITED STATES DISTRICT COURT

FINAL DECREE—Filed July 2, 1934

This cause came on to be further heard at this term and was argued by counsel and thereupon, upon consideration thereof it is

Ordered, that the exceptions of the plaintiff to the Master's report be and the same are hereby overruled and it is further

Ordered, that the exceptions of the defendants to the Master's report (except No. 11) be and the same are hereby overruled and it is further

Ordered, that the Master's report be and the same is hereby confirmed absolutely; and it is further

Ordered, that the motion of the plaintiff to assess interest at the rate of 6 per cent. per annum on the amount awarded by the Master from the date the infringement ceased, be and the same is hereby granted; and it is further

Ordered, that the plaintiff recover from the defendants, and/or either of them, the sum of four hundred and fourteen thousand, one hundred twenty dollars and seventy cents ($414,120.70), with interest thereon at the rate of six [fol. 1112] per centum (6%) per annum, from the date on which the infringement ceased, to wit, from May 31, 1930, until the entry of this decree, and it is further

Ordered, that the plaintiff recover from the defendants, and/or either of them, its costs heretofore taxed by the clerk of this court in the amount of eight thousand three hundred thirty-two dollars and twenty-five cents ($8332.25), and it is further

Ordered, that the plaintiff have judgment for the sums hereinabove decreed, in the total amount of five hundred twenty-three thousand nine hundred twelve dollars and fifty-two cents ($523,912.52) against the defendants, and/or either of them, and that such judgment shall carry

interest at the rate of six per centum (6%) per annum until paid.

Dated June 30, 1934.

F. P. Schoonmaker, United States District Judge.

Approved as to form.

Brown, Critchlow & Flick, Solicitors for Plaintiff.
Smith, Buchanan, Scott & Gordon, Solicitors for Defendants.

Eo die, an exception noted to the plaintiff, Triplex Safety Glass Company of North America, and the bill sealed.

F. P. Schoonmaker, United States District Judge.

Eo die, an exception noted to the defendants, Duplate Corporation and Pittsburgh Plate Glass Company, and the bill sealed.

F. P. Schoonmaker, United States District Judge.

[fol. 1113] In United States District Court

Order Regarding Findings of Fact and Conclusions of Law—Filed August 2, 1934

Now, this second day of August, 1934, this matter having come on to be heard on motion of the plaintiff's counsel and upon due consideration thereof, it is

Ordered that the opinion of this Court filed May 1, 1934, and the supplemental opinion filed June 28, 1934, and the Special Master's finidngs of fact and conclusions of law, as set forth in the findings of fact numbered 1 to 26, both inclusive, and the conclusions of law numbered 1 to 18, both inclusive, appearing at the conclusion of his report docketed in this court on the twelfth day of January, 1934, except the Special Master's conclusion of law 17, be and hereby are adopted as the findings of fact and conclusions of law of this Court in conformity with Equity Rule No. 70½.

F. P. Schoonmaker, United States District Judge.

And now, August 27, 1934, defendants except to the above order and at their instance exception noted and bill sealed.

F. P. Schoonmaker, D. J., per G.

[fol. 1114] IN UNITED STATES DISTRICT COURT

PETITION FOR APPEAL—Filed September 6, 1934

To the Honorable the Judges of Said Court:

Duplate Corporation and Pittsburgh Plate Glass Company, your petitioners, who are defendants in the above-entitled case, pray that they may be permitted to take an appeal from the decree entered in the above-entitled case on the thirtieth day of June, 1934, to the United States Circuit Court of Appeals for the Third Circuit, for the reasons specified in the assignments of error which are filed herewith. The filing of an appeal cost bond has been waived by stipulation of the parties heretofore filed with this Court.

William Watson Smith, Leon E. Hickman, Smith, Buchanan, Scott & Gordon, Bayard H. Christy, Solicitors for Petitioners.

IN UNITED STATES DISTRICT COURT

ORDER ALLOWING APPEAL—Filed September 6, 1934

The Petition of Duplate Corporation and Pittsburgh Plate Glass Company, defendants in the above-entitled case, for an appeal from the decree of the United States District Court is hereby allowed this sixth day of September, 1934, without the filing of an appeal cost bond, it having been waived by stipulation of the parties heretofore filed with this Court.

By the Court.

[fol. 1115] IN UNITED STATES DISTRICT COURT

ASSIGNMENTS OF ERROR—Filed September 6, 1934

And now, this sixth day of September, 1934, Duplate Corporation and Pittsburgh Plate Glass Company, defendants in the above-entitled case, complain that in the record and proceedings in such case and in the final judgment therein manifest error has occurred to the prejudice of the defend-

ants, more particularly specified in the following assignments of error, upon which the defendants rely to sustain the appeal prayed for to the United States Circuit Court of Appeals for the Third Circuit:

1. The District Court of the United States for the Western District of Pennsylvania erred in entering its decree for the plaintiff for $414,120.70 and interest and costs as therein set forth, said decree being as follows:

"Final Decree

"This cause came on to be further heard at this term and was argued by counsel and thereupon, upon consideration thereof, it is

"Ordered, that the exceptions of the plaintiff to the Master's Report be and the same are hereby overruled and it is further

"Ordered, that the exceptions of the defendants to the Master's Report (except No. 11) be and the same are hereby overruled and it is further

"Ordered that the Master's Report be and the same is hereby confirmed absolutely; and it is further

"Ordered that the motion of the plaintiff to assess interest at the rate of 6% per annum on the amount awarded by [fol. 1116] by the Master from the date the infringement ceased, be and the same is hereby granted; and it is further

"Ordered that the plaintiff recover from the defendants, and/or either of them, the sum of Four Hundred and Fourteen Thousand, One Hundred Twenty Dollars and Seventy Cents ($414,120.70) with interest thereon at the rate of six per centum (6%) per annum, from the date on which the infringement ceased, to-wit, from May 31, 1930, until the entry of this decree, and it is further

"Ordered that the plaintiff recover from the defendants, and/or either of them, its costs heretofore taxed by the Clerk of this Court in the amount of Eight Thousand Three Hundred Thirty-Two Dollars and Twenty-Five Cents ($8,332.25) and it is further

"Ordered that the plaintiff have judgment for the sums hereinabove decreed, in the total amount of Five Hundred Twenty-Three Thousand Nine Hundred Twelve Dollars and Fifty-Two Cents ($523,912.52) against the defendants, and/or either of them, and that such judgment shall carry

interest at the rate of six per centum (6%) per annum until paid.

Dated: June 30, 1934.

F. P. Schoonmaker, United States District Judge.

"Approved as to form.

Brown, Critchlow & Flick, Solicitors for Plaintiff.

Smith, Buchanan, Scott & Gordon, Solicitors for Defendants.",

to which decree the defendants were noted the following exception:

"Eo die, an exception noted to the defendants, Duplate Corporation and Pittsburgh Plate Glass Company, and the bill sealed.

F. P. Schoonmaker, United States District Judge."

[fol. 1117] 2. The District Court of the United States for the Western District of Pennsylvania erred in overruling the defendants' first exception to the report of the Special Master to whom this cause was referred for an accounting. This exception, reading as follows:

"1. The learned Master erred in his twenty-fifth finding of fact (p. 1047):

'25. That a reasonable royalty for the manufacture of laminated glass under the patent in suit during the accounting period was 10¢ per square foot.';

whereas he should have found (1) *that the plaintiff was entitled to nominal damages only,* (a) because the plaintiff, sustained by the learned Master, refused to permit the defendants to examine the books and records of the plaintiff for the purposes, among others, of showing the plaintiff's volume of business, its costs, profits, losses, rejections, returns, factory operating experience, damages from loss of sales, royalties and operating experience under its licenses to the Ford Motor Company and the Johnston Glass Company, all as more particularly requested, offered, opposed and ruled at pages 671-677, 775-776, 861, and 947-948 of the Record; (b) because, by statutory limitation (35 U. S. C. A., §70), a reasonable royalty may be awarded only if the plaintiff's damages or the defendants' profits or losses are not susceptible of calculation and determination with rea-

sonable certainty, both of which calculations the learned Master could and did make; (c) because a reasonable royalty is that royalty which one desiring to manufacture and sell the patented article during the accounting period would be willing to pay as a royalty, and yet be able to make a reasonable profit (Rockwood v. General Fire Extinguisher Co., 37 F. (2d) 62, 66, certiorari denied, 269 U. S. 571), and the learned Master has found that the defendants lost money during the accounting period (Finding No. 19, p. 49) and has refused to permit an examination of the plaintiff's [fol. 1118] books, as hereinbefore averred; (d) because no satisfactory process was in existence for the manufacture of the patented product and this had to be developed by the Ford Motor Company and Duplate Corporation at great expense and independently of the plaintiff and its patent (Wibel, 531-532; McCarroll, 549-550, 553-560; Sherts, 417-422, 429-436, 451-458; Clause, 337-342, 346-348, 370-371); (e) because the state of the art was such that neither the plaintiff, its licensees, nor Duplate Corporation could make a satisfactory product without a large percentage of defective product, resulting in rejections, replacements and returns and, as a consequence, increased sales resistance (Wibel, 532-535; McCarroll, 544-547, 549-550, 555-557; Sherts, 442-443; and Downey, 624, 627-628); (f) because the experience of the Ford Motor Company (Wibel, 528-541; McCarroll, 542-563), as licensee of the plaintiff, had been so unfortunate in the quality of the product produced as to greatly increase the difficulty of interesting the general public or the automobile companies in the use or purchase of laminated glass (Downey, 619, 624, 627-628; McLarty, 634-635; Wherrett, 867-868; Higgins, 801-803); (g) because difficulties of price due to the competition in price of the patented product with sheet and plate glass (Higgins, 789-790, 813-814, 874; Wherrett, 862; Fisher, 563-568; Downey, 619-624, 627-628), the lack of public interest in or demand for laminated glass in automobiles (Edwards, 167-169; McLarty, 633-635; Higgins, 482-485; Wibel, 530; Fisher, 563-568; Downey, 619-624, 627-628; cf. Caulfield, 231-233, 306), and the unfavorable impression created upon the public by the laminated windshields on Ford cars (f, supra), and the reluctance of the automobile manufacturers to create a demand by advertising to the public the dangers inherent in the unpatented windshield and window glass (Blackmore,

606-608), there was, until created by the efforts of the defendants, practically no market for laminated glass; and (h) because the learned Master was improperly influenced [fol. 1119] by the belief that the defendants had substantially driven the plaintiff out of business (Report, 1041-1043), a consideration which was neither correct (see fifth exception) nor relevant; or, in the alternative, (2) *that in no event should a reasonable royalty exceed one-half cent a square foot* (a) because the only testimony predicated upon the facts as the Master found them was to the effect that a reasonable royalty would not be in excess of one-half cent per square foot (Harness, 574 to 596; and Blackmore, 596 to 614), after giving due consideration to the supposed advantages to the plaintiff of its license to the Ford Motor Company, as enumerated at pages 1039-1040 of the Master's report (Harness, 578, 592, 595-596; Blackmore, 596); (b) because the learned Master appears to have given no consideration to the fact that the patent expired on May 9, 1933, an important factor (Harness, 584); (c) because the recommended reasonable royalty is improperly predicated in part upon plaintiff's testimony concerning a license to the Johnston Glass Company (Exhibit 24; and Haskell, 199), inasmuch as (i) that license covered eight patents, and contained covenants concerning volume and price of sales not comparable to the instant case, and (ii) there was no testimony of sales or royalties under that license other than that they were small (Haskell, 199), which the Master recognized as unsatisfactory at page 1030 of his report; (d) because the recommended reasonable royalty is twice as high as royalty paid by the Ford Motor Company on nine patents, including the one in suit, and two trade-marks (Exhibit "A"), and because this royalty paid by the Ford Motor Company also included free license for one-half of the licensee's requirements and a manufacturer's profit (Master's report, 1030), which, when segregated, leaves no more than one-half cent a square foot as royalty (Harness, 584-587, 595-596; Blackmore, 602-604, 613-614); (e) because the recommended reasonable royalty is predicated in part upon the Master's twenty-fourth finding of fact to the effect that the plaintiff at the time the infringement began had established a market for laminated glass, while the Mas- [fol. 1120] ter's report (pages 1036-1042) shows that the market thus established was trifling in size, and all of the

testimony is to the same effect (Edwards, 167-170; Caulfield, 231-233, 243, 306-308; Haskell, 191-192, 194-195; Hunt, 202; Higgins 482-487, 789-790, 803-805, 813-814; 874-877; Wherrett, 862, 867-868; Wibel, 529-531; Fisher, 563-568; Downey, 617-628; McLarty, 633-635, 637). The Master's discussion is found at pages 1034-1043 of his report.",

was overruled in the following portion of the final decree:

"Ordered, that the exceptions of the defendants to the Master's Report (except No. 11) be and the same are hereby overruled",

to which final decree an exception was noted to the defendants as follows:

"Eo die, an exception noted to the defendants, Duplate Corporation and Pittsburgh Plate Glass Company, and the bill sealed.

F. P. Schoonmaker, United States District Judge."

3. The District Court of the United States for the Western District of Pennsylvania erred in overruling the defendants' second exception to the report of the Special Master to whom this cause was referred for an accounting. This exception, reading as follows:

"2. The learned Master erred in his eighteenth conclusion of law (p. 1049),

" '18. That plaintiff is entitled to an award of $414,120.70 as royalty on the infringing laminated glass manufactured by defendant during the accounting period in in-*in*fringement of the patent in suit.';

whereas he should have ruled, on the basis of the reasons given in support of the first exception, that the plaintiff was entitled to nominal damages only.",

[fol. 1121] was overruled in the following portion of the final decree:

"Ordered, that the exceptions of the defendants to the Master's Report (except No. 11) be and the same are hereby overruled",

to which final decree an exception was noted to the defendants as follows:

"Eo die, an exception noted to the defendants, Duplate Corporation and Pittsburgh Plate Glass Company, and the bill sealed.

F. P. Schoonmaker, United States District Judge."

4. The District Court of the United States for the Western District of Pennsylvania erred in overruling the defendants' third exception to the report of the Special Master to whom this cause was referred for an accounting. This exception, reading as follows:

"3. The learned Master erred in refusing defendants' application to examine the books and records of the plaintiff, said ruling being as follows (R. 775-776):

" 'The Master: Defendants' application to examine the books and records by accountants employed by defendants as read into the record on Tuesday morning by Mr. Smith, covering all details in connection with the matters mentioned in said application, is refused and the defendant is ordered to proceed at once with its case.';

and repeated at page 948; whereas the Master should have permitted this examination for the purposes enumerated in the offer at pages 671-676 (and see pages 947-948, 861), the examination being material on the questions of (1) whether a reasonable royalty should be awarded, and, if so, how much, inasmuch as the examination would have disclosed plaintiff's volume of business, its costs, profits, [fol. 1122] losses, rejections, returns, factory operating experience, damages from loss of sales, royalties and operating experience under its licenses to the Ford Motor Company and the Johnston Glass Company, (2) whether the plaintiff suffered damage in the competition of Duplate Corporation, and, if so, its extent, and (3) the propriety of Duplate Corporation's items of expense which are challenged by the plaintiff, inasmuch as it would show that the plaintiff had comparable losses.",

was overruled in the following portion of the final decree:

"Ordered, that the exceptions of the defendants to the Master's Report (except No. 11) be and the same are hereby overruled,"

to which final decree an exception was noted to the defendants as follows:

"Eo die, an exception noted to the defendants, Duplate Corporation and Pittsburgh Plate Glass Company, and the bill sealed.

F. P. Schoonmaker, United States District Judge."

5. The District Court of the United States for the Western District of Pennsylvania erred in overruling the defendants' fourth exception to the report of the Special Master to whom this cause was referred for an accounting. This exception, reading as follows:

"4. The learned Master erred in his twenty-fourth finding of fact (p. 1047)

" '24. That the plaintiff, at the time the infringement began, had established a market for laminated glass.';

whereas he should have found, in accordance with pages 1036-1043 of his report, that the plaintiff had not established [fol. 1123] a substantial market for laminated glass (Edwards, 167-170; Caulfield, 231-233, 243, 306-308; Haskell, 191-192, 194-195; Hunt, 202; Higgins, 482-487, 789-790, 803-805, 813-814, 874-877; Wherrett, 862, 867-868; Wibel, 529-531; Fisher, 563-568; Downey 617-628; McLarty, 633-635, 637), and that the task of doing so was inherently difficult (Blackmore, 606-608). The learned Master's discussion is found at pages 1036-1041 of his report.",

was overruled in the following portion of the final decree:

"Ordered, that the exceptions of the defendants to the Master's Report (except No. 11) be and the same are hereby overruled,"

to which final decree an exception was noted to the defendants as follows:

"Eo die, an exception noted to the defendants, Duplate Corporation and Pittsburgh Plate Glass Company, and the bill sealed.

F. P. Schoonmaker, United States District Judge."

6. The District Court of the United States for the Western District of Pennsylvania erred in overruling the defend-

ants' sixth exception to the report of the Special Master to whom this cause was referred for an accounting. This exception, reading as follows:

"6. The learned Master erred in his second conclusion of law (p. 1047)

"'2. That Pittsburgh Plate Glass Company is entitled to credit for only the manufacturer's cost of the one-eighth inch plate glass used by it, or sold by it to and used by Duplate Corporation, in making laminated glass in infringement of the patent in suit.';

whereas he should have ruled that the defendants were entitled to credit for the purchase price paid by Duplate Cor- [fol. 1124] poration to Pittsburgh Plate Glass Company for one-eighth inch plate glass used in making laminated glass in infringement of the patent in suit (1) because the Pittsburgh Plate Glass Company was not called upon under the interlocutory decree of this Court dated December 5, 1931, to account for any profits, gains or advantages other than those accruing to it in the manufacture of infringing laminated glass; (2) because the plate glass, admittedly sold by the Pittsburgh Plate Glass Company to Duplate Corporation at the prevailing market price or below it (McHenry, 60; Higgins, 805-806; Wherrett, 866-867), being a marketable commodity (Master's report, 1055-1063; Higgins, 474-482, 486-496; cf. report, 1006-1007), in which the plaintiff had no patent right or other interest, should be charged into the account of the defendant Duplate Corporation at the market price thereof or the price paid by Duplate Corporation to Pittsburgh Plate Glass Company therefor, depending upon which was lower (Barber Asphalt Paving Co. v. Standard Asphalt & Rubber Co., 30 F. (2d) 281, 284, certiorari denied, 278 U. S. 659); (3) because Duplate Corporation could not be compelled to take the cost of plate glass to the Pittsburgh Plate Glass Company as its cost in this accounting without disregarding the separate corporate entities of the two companies, and this could not be done because (a) Duplate Corporation was owned in equal shares by Pittsburgh Plate Glass Company and Dupont Viscoloid Company (Master's report, 1001-1002; trial stipulation, 25; Clause, 391; McHenry, 55), (b) the management of Duplate Corporation was equally divided between the two stockholders (McHenry, 60-64, 78-80; Exhibit 21), and (c) sepa-

rate books were kept by all three companies (McHenry, 64-78, 80-82); (4) because he erroneously assumed (Report, 1055), without supporting testimony, that the Pittsburgh Plate Glass Company would have lost plate glass sales had not Duplate Corporation manufactured laminated glass, whereas uncontradicted subsequent testimony was to the [fol. 1125] effect that sales of laminated glass by Duplate Corporation were simply replacing sales of plate glass by Pittsburgh Plate Glass Company, and had sales of laminated glass not been made by Duplate Corporation the Pittsburgh Plate Glass Company would have sold plate glass to the same customers in the same amounts, with but possibly one exception (Wherrett, 868-869; Higgins, 808-810), and it is undisputed that the Pittsburgh Plate Glass Company did and would have sold plate glass to third parties manufacturing laminated glass (Higgins, 487-490; Edwards, 159-161; apparently conceded in Master's report, 1055), as it is likewise established that laminated glass was being sold by Duplate Corporation because of the sales efforts of its sales agent, Pittsburgh Plate Glass Company, and not because of the plaintiff or because of the intrinsic merit of the product (Higgins, 482-487, 789-790; Fisher, 564-565; Downey, 620-621, 826-828); (5) because in assuming (Report, 1058-1059) that unless he allowed plate glass profits to the plaintiff it would be possible for an infringer to sell a patented article at a loss and make up its profit on the marketable unpatented raw material, he ignored the undisputed testimony, both before and after his ruling, to the effect that the defendants were doing no such thing in the instant case, but were rather selling the infringing product at the best obtainable price (Higgins, 789-790, 792-794, 803-805, 822-823, 482-487; Fisher, 564-566; Downey, 619-623, 626-628; McLarty, 629-631, 634-635; cf. Edwards, 168-169) and a later ruling by the Master (595) was predicated on this position; (6) because the plate glass of the Pittsburgh Plate Glass Company was manufactured under twenty-six patents (Clause, 748-768), in none of which the plaintiff had an interest; and (7) because the owner of a patent is not entitled to recover profits resulting only indirectly from infringement. The argument of the learned Master in support of his ruling is found at pages 1006-1010 of his report and in Appendix "A" thereto.",

[fol. 1126] was overruled in the following portion of the final decree:

"Ordered, that the exceptions of the defendants to the Master's Report (except No. 11) be and the same are hereby overruled,"

to which final decree an exception was noted to the defendants as follows:

"Eo die, an exception noted to the defendants, Duplate Corporation and Pittsburgh Plate Glass Company, and the bill sealed.

F. P. Schoonmaker, United States District Judge."

7. The District Court of the United States for the Western District of Pennsylvania erred in overruling the defendants' eighth exception to the report of the Special Master to whom this cause was referred for an accounting. The exception, reading as follows:

"8. The learned Master erred in his nineteenth finding of fact (p. 1047)

" '19. That defendant, during the accounting period, operated at a net loss in the manufacture and sale of the infringing product of $276,857.47.';

whereas he should have found (1) that, for the reasons enumerated in the sixth exception, the defendant Duplate Corporation during the accounting period suffered a further net loss of $712,998.65 (computed by contrasting the computation based on sales price, as set forth in the contested items in Appendix "B," page 1, of the Master's report, with his allowance appearing on page 2 of the same appendix) in the manufacture and sale of the infringing product, this additional loss representing the spread between the so-called manufacturer's cost of the plate glass sold by the Pittsburgh Plate Glass Company to Duplate Corporation and the sales price at which this plate glass was sold by [fol. 1127] Pittsburgh Plate Glass Company to Duplate Corporation; (2) that if the foregoing portion of this exception is disallowed, he should have given Duplate Corporation an additional credit of $318,403.03, representing loss to the Pittsburgh Plate Glass Company in selling expense over and above commissions received from Duplate Corporation

(Exhibit "BB"; McHenry, 783-785, 837-840, 919-929, 933-938; see Master's discussion at p. 1014 of his report); and (3) regardless of the ruling on the foregoing portions of this exception, he should have allowed as an additional item of expense the sum of $72,060.42, which represented, as he found (Report, p. 1005), loss suffered by Duplate Corporation after the accounting period in reimbursing distributors for making replacements of defective laminated glass manufactured during the accounting period and guaranteed as to quality by the defendants (Exhibit "X"; McHenry, 777-780, 884-886, 891-901, 929-933). His rejection of this loss appears at page B-2 of his report.",

was overruled in the following portion of the final decree:

"Ordered, that the exceptions of the defendants to the Master's Report (except No. 11) be and the same are hereby overruled,"

to which final decree an exception was noted to the defendants as follows:

"Eo die, an exception noted to the defendants, Duplate Corporation and Pittsburgh Plate Glass Company, and the bill sealed.

F. P. Schoonmaker, United States District Judge."

8. The District Court of the United States for the Western District of Pennsylvania erred in overruling the defendants' tenth exception to the report of the Special [fol. 1128] Master to whom this cause was referred for an accounting. The exception, reading as follows:

"'10. The learned Master erred in his twenty-first finding of fact (p. 1047)

"'21. That plaintiff had the manufacturing facilities, personnel, and capital to handle the sales made by Duplate Corporation, as well as its own.';

whereas he should have found that the plaintiff did not have the manufacturing facilities, personnel or capital to handle the sales of infringing products made by Duplate Corporation, as well as its own (Haskell, 185; Caulfield, 229-232, 306; McCarroll, 544-547, 549-550, 561-563; Wibel,

532-534; cf. Clause, 324-325; Sherts, 412-414). The learned Master's discussion is found at page 1031 of his report.",

was overruled in the following portion of the final decree:

"Ordered, that the exceptions of the defendants to the Master's Report (except No. 11) be and the same are hereby overruled,"

to which final decree an exception was note- to the defendants as follows:

"Eo die, an exception noted to the defendants, Duplate Corporation and Pittsburgh Plate Glass Company, and the bill sealed.

F. P. Schoonmaker, United States District Judge."

9. The District Court of the United States for the Western District of Pennsylvania erred in entering the following order:

"Order Regarding Findings of Fact and Conclusions of Law

"Now, this 2nd day of August, 1934, this matter having come on to be heard on motion of the plaintiff's counsel [fol. 1129] and upon due consideration thereof, it is

"Ordered that the Opinion of this Court filed May 1, 1934 and the Supplemental Opinion filed June 28, 1934, and the Special Master's Findings of Fact and Conclusions of Law, as set forth in the Findings of Fact numbered 1 to 26, both inclusive, and the Conclusions of Law numbered 1 to 18, both inclusive, appearing at the conclusion of his report docketed in this court on the 12th day of January, 1934, except the Special Master's Conclusion of Law 17, be and hereby are adopted as the Findings of Fact and Conclusions of Law of this Court in conformity with Equity Rule No. 70½.

F. P. Schoonmaker, United States District Judge,"

to which order an exception was noted to the defendants as follows:

"And now, August 27, 1934, defendants except to the above order, and at their instance exception noted and bill sealed.

F. P. Schoonmaker, D. J., per G."

10. The District Court of the United States for the Western District of Pennsylvania erred in the allowance of interest on the damages decreed to the plaintiff, at the rate of 6 per cent. per annum from the date that infringement of the plaintiff's patent by the defendants ceased, such allowance appearing in the following portion of the final decree:

"Ordered that the motion of the plaintiff to assess interest at the rate of 6% per annum on the amount awarded by the Master from the date the infringement ceased, be and the same is hereby granted; and it is further

[fol. 1130] "Ordered that the plaintiff recover from the defendants, and/or either of them, the sum of Four Hundred and Fourteen Thousand, One Hundred Twenty Dollars and Seventy Cents ($414,120.70) with interest thereon at the rate of six per centum (6%) per annum, from the date on which the infringement ceased, to-wit, from May 31, 1930, until the entry of this decree,"

to which final decree an exception was noted to the defendants as follows:

"Eo die, an exception noted to the defendants, Duplate Corporation and Pittsburgh Plate Glass Company, and the bill sealed.

F. P. Schoonmaker, United States District Judge."

William Watson Smith, Leon E. Hickman, Smith, Buchanan, Scott & Gordon, Bayard H. Christy, Solicitors for Defendants.

In United States District Court

Notice of Appeal—Filed September 17, 1934

Sirs:

Please take notice that the plaintiff in the above-entitled case, Triplex Safety Glass Company of North America, appeals in the United States Circuit Court of Appeals for the Third Circuit from the final decree of the District Court of the United States for the Western District of Pennsyl-

vania, which was signed and entered on the thirtieth day of June, 1934, confirming the Master's report in the above-entitled case absolutely.

[fol. 1131] The grounds upon which this appeal is prosecuted are recited in the assignment of errors which are served upon you herewith.

Dated September 17, 1934.

Yours, etc., Brown, Critchlow & Flick, Solicitors for Plaintiff. First National Bank Building, Pittsburgh, Pa.

To Smith, Buchanan, Scott & Gordon, Esqs., Union Trust Building, Pittsburgh, Pa.

Copy of the within notice of appeal and petition for appeal, acknowledged this seventeenth day of September, 1934.

Smith, Buchanan, Scott & Gordon, Solicitors and Counsel for Defendants.

IN UNITED STATES DISTRICT COURT

PETITION FOR APPEAL—Filed September 17, 1934

To the Honorable F. P. Schoonmaker, Judge of the District Court of the United States, for the Western District of Pennsylvania:

The above-named plaintiff, feeling itself aggrieved by the decree made and entered in this case on the thirtieth day of June, 1934, does hereby appeal from said decree to the United States Circuit Court of Appeals, for the Third Circuit, for the reasons specified in the assignment of errors, [fol. 1132] which is filed herewith, and prays that its appeal be allowed and that a citation issue as provided by law, directed to the above-named defendants and commanding them, and each of them, to appear before said Circuit Court of Appeals for the Third Circuit, and do and receive what may pertain to justice in the premises; that a transcript of the record, proceedings and evidence in the case, duly authenticated, may be sent to the United States Circuit Court of Appeals, for the Third Circuit, and that the

decision and decree of the District Court may be reviewed, revised and modified and such other order entered as to said United States Circuit Court of Appeals may seem meet and just.

Dated September 17, 1934.

Brown, Critchlow & Flick, Solicitors for Plaintiff.

IN UNITED STATES DISTRICT COURT

ORDER ALLOWING APPEAL—Filed September 17, 1934

And now, to-wit, on the seventeenth day of September, 1934, the foregoing petition for appeal is granted and allowed.

McVicar, U. S. D. J.

[fol. 1133] IN UNITED STATES DISTRICT COURT

ASSIGNMENT OF ERRORS—Filed September 17, 1934

Eo die comes the plaintiff, Triplex Safety Glass Company of North America, and files together with its foregoing petition of appeal this, its assignment of errors, upon which it will rely in its appeal from the decree made by this Court on the thirtieth day of June, 1934:

1. The District Court erred in overruling plaintiff's first exception to the Master's finding of fact 4 in his report, which exception reads as follows:

"To the Master's Finding of Fact that there was an honest difference of opinion between patent counsel representing plaintiff and patent counsel representing defendant as to whether the patent in suit was actually infringed,"

and also erred in not sustaining said exception and reversing the Master's said finding of fact 4; and also erred in not finding that the only difference between counsel for the respective parties was with respect to the facts of the defendants' manufacturing methods.

2. The District Court erred in overruling plaintiff's second exception to the Master's conclusion of law 1 in his report, which exception reads as follows:

"To the Master's conclusion of law that the defendant was not a conscious and deliberate infringer of the patent in suit,"

and also erred in not sustaining said exception and reversing the Master's said conclusion of law 1, and also erred in not concluding as a matter of law that the defendants consciously and deliberately infringed the patent in suit.

[fol. 1134] 3. The District Court erred in holding that the defendant, Pittsburgh Plate Glass Company, was brought into the case on supplemental bill charging it to be a contributory infringer and also erred in not holding that Pittsburgh Plate Glass Company was brought into the case on supplemental bill charging it to be the alter ego of the Duplate Corporation.

4. The District Court erred in holding that counsel for the defendant, Pittsburgh Plate Glass Company, examined plaintiff's process in the manufacture of laminated glass, after which defendant's counsel gave to the defendants his legal opinion that their method of manufacturing strengthened glass did not infringe the plaintiff's patent, and also erred in not holding that counsel for defendant, Pittsburgh Plate Glass Company, did not examine plaintiff's process for the manufacture of laminated glass and did not examine defendant's process for the manufacture of laminated glass.

5. The District Court erred in holding that the defendant's counsel gave to the defendants his legal opinion that the defendant's method of manufacturing strengthened glass did not infringe the plaintiff's patent and also erred in not holding that defendant's counsel's opinion as to whether or not the defendant's method of manufacturing strengthened glass infringed the plaintiff's patent was based upon misinformation received by defendant's counsel from the agents of the defendant.

6. The District Court erred in overruling plaintiff's third exception to the Master's report, which reads as follows:

"To the Master's failure to find that the record before the Master fails to disclose any 'standard of comparison' with laminated glass,"

and also erred in not sustaining such exception.

[fol. 1135] 7. The District Court erred in overruling plaintiff's fourth exception to the Master's report, which reads as follows:

"To the Master's failure to find that there is no proof that the defendant's patents contributed anything to the profits derived from the infringing sales of laminated glass or added anything to the salability or usefulness of the laminated glass sold in infringement of the patent in suit,"

and also erred in not sustaining said exception.

8. The District Court erred in overruling plaintiff's fifth exception to the Master's conclusion of law 3 in his report, which exception reads as follows:

"To the Master's conclusion of law that in computing manufacturer's cost of the 1/8" plate glass in question, defendant is entitled to an allowance for the use of patented processes and apparatus owned by it and used in the manufacture aforesaid,"

and also erred in not sustaining said exception and reversing the Master's said conclusion of law 3 and also erred in not concluding as a matter of law that the defendant was not entitled to any allowance or apportionment of profits made from the sale of laminated glass for the use of patented process and apparatus owned by it and used in the manufacture of 1/8-inch plate glass.

9. The District Court erred in sustaining the Master's allowance of $1,108,692.73 as a deduction from profits for the use of the patented processes and apparatus owned by defendant and used by it in the manufacture of thin plate glass and also erred in not disallowing the same.

10. The District Court erred in overruling plaintiff's seventh exception to the Master's report, which reads as follows:

[fol. 1136] "To the Master's failure to conclude as a matter of law that the comparison of the continuous process

with the old process is not the proper standard of comparison in this case,"

and also erred in not sustaining said exception.

11. The District Court erred in overruling plaintiff's eighth exception to the Master's report, which reads as follows:

"To the Master's failure to conclude as a matter of law that the defendant, being a deliberate and conscious infringer, is not entitled to any allowance for the use of its patents,"

and also erred in not sustaining said exception.

12. The District Court erred in overruling plaintiff's thirteenth exception to the Master's finding of fact 8 in his report, which exception reads as follows:

"To the Master's finding that Pittsburgh Plate Glass Company suffered a 'Special Cutting Loss' on its sale of the 1/8" plate glass in question, amounting to 1.548¢ per square foot in 1928; 1.621¢ in 1929 and 2.590¢ in the first five months of 1930,"

and also erred in not sustaining said exception and reversing the Master's said finding of fact 8, and also erred in not finding that the so-called "Special Cutting Loss" represents a reduction in profits and not an actual manufacturing loss.

13. The District Court erred in overruling plaintiff's fifteenth exception to the Master's Report, which reads as follows:

"To the Master's failure to specifically find that the so-called 'Special Cutting Loss' represents a reduction of expected profit and not an actual manufacturing loss,"

and also erred in not sustaining said exception.

[fol. 1137] 14. The District Court erred in overruling plaintiff's sixteenth exception to the Master's conclusion of law 5 in his report, which exception reads as follows:

"To the Master's Conclusion of Law that in computing manufacturer's cost of the 1/8" plate glass in question, de-

fendant is entitled to an allowance for 'Special Cutting Loss,' ''

and also erred in not sustaining said exception and reversing the Master's said conclusion of law 5, and also erred in not concluding as a matter of law that defendant is not entitled to an allowance for the so-called "Special Cutting Loss."

15. The District Court erred in sustaining the Master's allowance of $178,545.86 as a deduction from profits because of an alleged "Special Cutting Loss" and also erred in not disallowing the same.

16. The District Court erred in overruling plaintiff's ninth exception to the Master's conclusion of law 4 in his report, which exception reads as follows:

"To the Master's conclusion of law that in computing the manufacturer's cost for ⅛" plate glass in question, the defendant is entitled to an allowance for Federal Income Tax paid by it in the manufacture thereof,"

and also erred in not sustaining said exception and reversing the Master's said conclusion of law 4 and also erred in not concluding as a matter of law that the defendants are not entitled to any allowance or deduction from profits for Federal income taxes paid.

17. The District Court erred in overruling plaintiff's tenth exception to the Master's report, which reads as follows:

"To the Master's failure to conclude as a matter of law that the defendant, being a conscious and deliberate in- [fol. 1138] fringer, is not entitled to any allowance for amounts paid by it as Federal Income Tax",

and also erred in not sustaining said exception.

18. The District Court erred in sustaining the Master's allowance of $216,540.76 as a deduction from profits for the Federal Income Tax paid by the defendant, and also erred in not disallowing the same.

19. The District Court erred in overruling plaintiff's twentieth exception to the Master's conclusion of law 6 in his report, which exception reads as follows:

"To the Master's conclusion of law that in computing manufacturer's cost of the 1/8" plate glass in question, defendant is entitled to an allowance for Interest on its Investment,"

and also erred in not sustaining said exception and reversing the Master's said conclusion of law six, and also erred in not concluding as a matter of law that the defendants, being deliberate infringers, are not entitled to any allowance or deduction for interest on its investment.

20. The District Court erred in sustaining the Master's allowance of $358,784.77 as a deduction from profits for interest on investment of defendant, and also erred in not disallowing the same.

21. The District Court erred in overruling plaintiff's twenty-fourth exception to the Master's conclusion of law eight in his report, which exception reads as follows:

"To the Master's Conclusion of Law that the cost of 1/8" plate glass used by the defendant but later resulting in operating losses or returns, should be included in the cost of plate glass used in computing profits or losses,"

[fol. 1139] and also erred in not sustaining said exception and reversing the Master's said conclusion of law eight, and also erred in not concluding as a matter of law that the cost of making defective laminated glass should not be included in cost when computing profits or losses.

22. The District Court erred in overruling plaintiff's twenty-fifth exception to the Master's report, which reads as follows:

"To the Master's failure to conclude as a matter of law that since no selling price for defective laminated glass has been credited to the account, the defendant is not entitled to charge the cost of manufacturing defective laminated glass against the profits made by the sale of good laminated glass,"

and also erred in not sustaining said exception.

23. The District Court erred in overruling plaintiff's twenty-sixth exception to the Master's conclusion of law nine in his report, which exception reads as follows:

"To the Master's conclusion of law that the defendant is entitled to include 'Factory Operating Losses' in its costs, in computing its profits and losses,"

and also erred in not sustaining said exception and reversing the Master's said conclusion of law nine and also erred in not concluding as a matter of law that defendants are not entitled to include "Factory Operating Losses" or defective laminated glass in its costs in computing profits or losses.

24. The District Court erred in sustaining the Master's allowance of $973,227.39, representing the cost of manufacturing defective laminated glass and called factory operating losses by the Master, and also erred in not disallowing $949,186.57 thereof.

[fol. 1140] 25. The District Court erred in overruling plaintiff's twenty-seventh exception to the Master's conclusion of law ten, which exception reads as follows:

"To the Master's conclusion of law that the defendant is entitled to charge the cost of infringing product returned as defective during the accounting period as part of its manufacturing cost in this account,"

and also erred in not sustaining said exception and reversing the Master's said conclusion of law ten and also erred in not concluding as a matter of law that the defendant is not entitled to charge the cost of infringing product returned as defective as a part of its manufacturing cost in this account.

26. The District Court erred in sustaining the Master's allowance of $421,348.81 as a deduction from profits representing the cost of manufacturing defective laminated glass returned by customers during the accounting period and also erred in not disallowing the same.

27. The District Court erred in overruling plaintiff's twenty-eighth exception to the Master's conclusion of law eleven in his report, which exception reads as follows:

"To the Master's conclusion of law that the defendant is entitled to charge the cost of the infringing product sold during the accounting period but returned as defective sub-

sequent to the accounting period as part of its manufacturing cost in this accounting,"

and also erred in not sustaining said exception and reversing the Master's said conclusion of law eleven, and also erred in not concluding as a matter of law that the defendants are not entitled to charge the cost of infringing product returned as defective as a part of its manufacturing cost in this account.

[fol. 1141] 28. The District Court erred in overruling plaintiff's thirtieth exception to the Master's report, which reads as follows:

"To the Master's failure to find that the defendant is not entitled to deduct the selling price on the infringing glass returned by customers after the accounting period from the profits which accrued to the defendant during the accounting period,"

and also erred in not sustaining said exception.

29. The District Court erred in sustaining the Master's allowance of $82,788.64 as a deduction from profits representing the selling price of defective infringing laminated glass returned by customers after the accounting period, and also erred in not disallowing the same.

30. The District Court erred in overruling plaintiff's thirty-third exception to the Master's conclusion of law fourteen in his report, which exception reads as follows:

"To the Master's conclusion of law that the nature of this accounting is such that specific selling prices cannot be compared with average monthly costs in order to distinguish loss producing sales from profit making sales,"

and also erred in not sustaining said exception and reversing the Master's said conclusion of law fourteen, and also erred in not concluding as a matter of law that costs must necessarily be averaged and that since defendants used monthly average costs in its accounting system that the method of comparing such monthly costs with specific selling prices is the correct method to be used in this account.

31. The District Court erred in overruling plaintiff's thirty-fourth exception to the Master's conclusion of law [fol. 1142] fifteen in his report, which exception reads as follows:

"To the Master's conclusion of law that the defendant is entitled to include the sum of $219,036.93 as 'Additional Pyralin Losses' in its manufacturing cost during the accounting period,"

and also erred in not sustaining said exception and reversing the Master's said conclusion of law fifteen and also erred in not concluding as a matter of law that said sum of $219,036.93 having been used to make defective laminated glass, defendant is not entitled to include such sum in its manufacturing cost.

32. The District Court erred in overruling plaintiff's thirty-fifth exception to the Master's finding of fact nineteen in this report, which exception reads as follows:

"To the Master's finding that the defendant during the accounting period operated at a net loss in the manufacture and sale of infringing product of $276,857.47,"

and also erred in not sustaining said exception and reversing the Master's said finding of fact nineteen.

33. The District Court erred in that it failed to find that the defendant operated at a net profit of $3,258,067.60 in the manufacture and sale of the infringing product, and also erred in that the District Court failed to conclude as a matter of law that the plaintiff was entitled to recover that amount from the defendants.

34. The District Court erred in overruling plaintiff's thirty-ninth exception to the Master's report, which reads as follows:

[fol. 1143] "To the Master's failure to find that the defendant, Pittsburgh Plate Glass Company, made a profit of $2,465,562.77 on the billing price of ⅛" plate glass to its laminated Department,"

and also erred in not sustaining said exception.

35. The District Court erred in overruling plaintiff's fortieth exception to the Master's report, which reads as follows:

"To the Master's failure to conclude as a matter of law that 20% of the selling price of the manufacturer would be a reasonable royalty under the circumstances in this case,"

and also erred in not sustaining said exception.

36. The District Court erred in overruling plaintiff's forty-first exception to the Master's report, which reads as follows:

"To the Master's failure to conclude as a matter of law that the plaintiff is entitled to an award of not less than $1,368,160.73 as a reasonable royalty on the infringing laminated glass product manufactured by the defendant during the accounting period, in infringment of the patent in suit,"

and also erred in not sustaining said exception.

37. The District Court erred in overruling plaintiff's exceptions to the Master's report numbered, first, second, third, fourth, fifth, seventh, eighth, ninth, tenth, thirteenth, fifteenth, sixteenth, twentieth, twenty-fourth, twenty-fifth, twenty-sixth, twenty-seventh, twenty-eighth, thirtieth, thirty-third, thirty-fourth, thirty-fifth, thirty-ninth, fortieth and forty-first.

38. The District Court erred in not sustaining plaintiff's exceptions to the Master's report numbered, first, [fol. 1144] second, third, fourth, fifth, seventh, eighth, ninth, tenth, thirteenth, fifteenth, sixteenth, twentieth, twenty-fourth, twenty-fifth, twenty-sixth, twenty-seventh, twenty-eighth, thirtieth, thirty-third, thirty-fourth, thirty-fifth, thirty-ninth, fortieth and forty-first.

39. The District Court erred in confirming the Master's report absolutely.

Wherefore, the plaintiff prays that said decree of the District Court for the Western District of Pennsylvania be modified and that said District Court be ordered to enter

a decree modifying its former decree in respect to the issues raised in the foregoing assignment of errors.

Dated September 17, 1934.

Brown, Critchlow & Flick, Solicitors for Plaintiff.

IN UNITED STATES DISTRICT COURT

STIPULATION RE RECORD—Filed October 3, 1934

And now, this third day of October, 1934, it is stipulated by and between the plaintiff and defendants hereto that, subject to the consent of the Court, the record on the appeals of the parties hereto from the decree of the Court shall be printed in the form and contained those portions of the record hereinafter set forth:

1. There shall be one record printed, to be the record of all parties in their respective appeals.

2. Those portions of the evidence taken before the Special Master appointed by the Court which are to be printed [fol. 1145] shall be printed in the question and answer form in which they were originally transcribed.

3. The following portions of the record shall be printed:

(a) The docket entries.

(b) The pleadings upon which the case was heard and determined, including the pleadings in the supplemental suit.

(c) The decrees of the District Court, dated December 9, 1929, and December 5, 1931.

(d) The release of bond, and order discharging surety on bond, dated respectively December 15 and 16, 1931.

(e) The transcript of the testimony taken before the Special Master except the following portions thereof:

The testimony of Mr. McHenry: From the second to and including the twelfth line on page 39; from the thirteenth line on page 40 to and including the fifth line on page 50; from the eleventh line on page 55 to the bottom of page 59;

from the fifteenth line on page 69 to and including the seventeenth line on page 71.

The testimony of Mr. Wherrett: From the eleventh line on page 239 to the bottom of page 249.

The ruling of the Master and the testimony of Mr. McHenry: From the top of page 250 to and including the fourth line on page 255; from the twenty-second line on page 255 to and including the seventh line on page 258; from the twenty-third line on page 258 to and including the first line on page 260.

The testimony of Mr. Clause: From the eleventh line on page 437 to and including the twenty-second line on page [fol. 1146] 440; from the fifth line on page 456 to and including the tenth line on page 461.

The testimony of Mr. Sherts: From the fourteenth line on page 553 to and including the eighth line on page 554; from the sixteenth line on page 579 to and including the eleventh line on page 580; from the eighth line on page 585 to the bottom of page 589; from the last line on page 653 to and including the twelfth line on page 656; from the ninth line on page 660 to and including the tenth line on page 662; from the tenth line on page 665 to and including the seventeenth line on page 679; from the top of page 685 to the bottom of page 734.

The interlocutory opinion of the Special Master: From the top of page 743 to the bottom of page 760, but substituting for such omission the following note in the record:

"Note.—There appears at this point in the record before the Special Master a copy of his interlocutory opinion, set forth at length in volume III at side folios 1052, 1068, of the printed record."

The testimony of Mr. McHenry: From the twenty-first line on page 1014 to and including the thirteenth line on page 1020; from the sixth line on page 1027 to and including the eighteenth line on page 1029.

The testimony of Mr. Tinstman: Beginning at the top of page 1105 to the bottom of page 1133, substituting in lieu thereof the following:

"Note.—There appeared at this point in the record the testimony of Mr. Tintsman explaining the efforts of Duplate Corporation to salvage material from defective product."

The testimony of Mr. McHenry: From the second line on page 1207 to and including the eleventh line on page 1209.

[fol. 1147] (f) Duplate Corporation's original statement of account submitted at the beginning of the hearings before the Special Master.

(g) The following plaintiff's exhibits submitted in the course of the hearings before the Special Master, to-wit: Exhibits numbered 5 (first sheet only), 6, that portion of 8 which is an abstract of stock and departmental accounts for the month of January, 1929; that portion of 9 which is a statement of the account for the month of January, 1929, 9-A, 10, 11, 12, 13, 14, 19, 21, 22, 23, 24, 26-A, 28, 30 and 31.

(h) The following defendants' exhibits submitted in the course of the hearings before the Special Master, to-wit, Exhibits A, B, M, N, P, R, U, AA, BB, DD, EE, FF, GG, HH and supplemental II, inserting after Exhibit U the following:

"NOTE.—It is stipulated by all parties that Exhibit W contains the detail of returns of infringing product manufactured during the infringing period but returned after May, 1930, showing a returned feetage of 49,810 ft. 5 in. of a value of $83,561.42; and that Exhibit X contains the detail of credits to warehouses for replacements on account of defective infringing product manufactured and sold during the infringing period but replaced subsequent thereto, such replacements amounting to 26,679 ft. 9 in. and $72,060.42 in credits. The correctness of the data appearing in these exhibits is not challenged, the sole issue between the parties being a question of law as to whether either or both are proper credits."

(i) The report of the Special Master.

(j) The exceptions of both parties to that report.

[fol. 1148] (k) Motions of both parties to dismiss the exceptions of the other.

(l) The opinions of the District Court as follows: Opinion dated June 10, 1932, and order thereon dated June 22, 1932; Opinion dated October 21, 1932, and order thereon

dated October 31, 1932; Opinion dated May 1, 1934, and Opinion dated June 28, 1934.

(m) The decree of the District Court dated June 30, 1934.

(n) Order regarding findings of fact and conclusions of law.

(o) The assignments of error of both parties.

(p) Stipulation as to record.

(q) The petitions of both parties and orders allowing appeals.

4. The following exhibits, which are deemed material by one or more of the parties and which would be printed except for their great bulk, shall be submitted to the Court as manual exhibits, with the same force and effect as though they were printed, this procedure being adopted by analogy to Rule 32 of the United States Circuit Court of Appeals for the Third Circuit, and subject to its consent:

Plaintiff's Exhibit 8, except that portion which is an abstract of stock and departmental accounts for the month of January, 1929; Plaintiff's Exhibit 9, stating the account, except the month of January, 1929, and Plaintiff's Exhibit 27; and Defendants' Exhibits F, O, Q, Q-1, V, Y and Z; also the former printed transcript of record filed when this cause was formerly on appeal to the United States Circuit Court of Appeals for the Third Circuit.

[fols. 1149 & 1150] 5. The record shall be printed by the clerk of the Circuit Court of Appeals for the Third Circuit, and he is authorized to use his discretion in determining what portion, if any, of the exhibits listed for printing should be photostated instead of printed.

6. The cost of printing this record shall be considered as applicable to the respective appeals of the plaintiff and defendants in equal shares and shall be borne by the parties in that proportion in the first instance.

Triplex Safety Glass Company of North America, by Brown, Critchlow & Flick, Its Solicitors. Duplate Corporation and Pittsburgh Plate Glass Company, by Smith, Buchanan, Scott & Gordon, Its Solicitors.

IN UNITED STATES DISTRICT COURT

ORDER AS TO RECORD

And now, this third day of October, 1934, the foregoing stipulation concerning the record in the foregoing cases having been submitted to this Court, the same is hereby approved, and it is

Ordered that the printed record on appeal shall consist of the above-named papers and documents.

Per Curiam, S.

[fol. 1151] IN UNITED STATES CIRCUIT COURT OF APPEALS, FOR THE THIRD CIRCUIT

No. 5606. October Term, 1934

No. 5626. October Term, 1934

[Titles omitted]

MINUTE ENTRY OF ARGUMENT AND SUBMISSION

And afterwards, to wit, the second day of January, 1935, come the parties aforesaid by their counsel aforesaid, and this case being called for argument sur pleadings and briefs, before the Honorable Joseph Buffington, Honorable Victor B. Woolley and Honorable J. Whitaker Thompson, Circuit Judges, and the Court not being fully advised in the premises, takes further time for the consideration thereof,

And afterwards, to wit, on the twelfth day of December, 1935, come the parties aforesaid by their counsel aforesaid, and the Court, now being fully advised in the premises, renders the following decision:

[fol. 1152] IN UNITED STATES CIRCUIT COURT OF APPEALS, FOR THE THIRD CIRCUIT

No. 5606. October Term, 1934

DUPLATE CORPORATION and PITTSBURGH PLATE GLASS COMPANY, Defendants-Appellants,

v.

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA, Plaintiff-Appellee

No. 5626. October Term, 1934

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA, Plaintiff-Appellant

v.

DUPLATE CORPORATION and PITTSBURGH PLATE GLASS COMPANY, Defendants-Appellees

Upon Appeals From the District Court of the United States for the Western District of Pennsylvania

Before Buffington, Woolley and Thompson, Circuit Judges

OPINION—Filed December 12, 1935

[fol. 1153] THOMPSON, Circuit Judge:

These are cross appeals from a decree of the District Court for the Western District of Pennsylvania affirming the report of a master in a reference for an accounting. The cause has been before this court on a prior appeal in Duplate Corp. v. Triplex Safety Glass Company, 42 F. (2d) 739. We there affirmed an interlocutory decree holding the plaintiff's patent for the manufacture of laminated glass valid and infringed by the defendant, the Duplate Corporation, hereinafter referred to as Duplate. Thereupon an accounting was ordered by the District Court and referred to a special master. The Pittsburgh Plate Glass Company, hereinafter referred to as Pittsburgh, which owned one-half of the stock of Duplate and supplied Duplate with the plate glass used in the manufacture of laminated glass, was added

as a defendant by a supplemental interlocutory decree. The master found that the defendants were innocent infringers and that they had made no profits from their manufacture and sale of laminated glass. He recommended an award as special damages due to price reductions forced on the plaintiff, Triplex Safety Glass Company of North America, hereinafter referred to as Triplex, by the competitive methods of the defendants. He also recommended an award of $414,120.70 as general damages for the losses sustained by the plaintiff, measured by a so-called reasonable royalty. Both the plaintiff and the defendants filed exceptions to the master's report. The District Court dismissed the exceptions and affirmed the report in all respects. In a supplemental opinion it sustained the exceptions to the award to Triplex of the special damage item, having concluded that the adoption of a reasonable royalty as a basis of recovery precluded any further award. No error is assigned by the plaintiff to that ruling. By final decree, the District Court ordered that Pittsburgh pay to Triplex $414,120.70, [fol. 1154] together with interest from the end of the accounting period and also the costs of suit. Both the plaintiff and the defendants have appealed from that decree.

The plaintiff assigns error to the rulings by the District Court that the infringement was in good faith; that the defendants' method of stating the account was justifiable; that Duplate was entitled to take credit for rejects and returns of laminated glass and for pyralin losses; and that Pittsburgh was entitled to take credit, as to plate glass, for the use of patents owned by it, for federal income taxes, for interest on its investment, and for cutting losses. The defendants appeal from the award, which, they contend, is excessive, and from the rulings of the District Court that it had power to award general damages and that the defendants were not entitled to examine the plaintiff's books. They also appeal from the award of interest and from the imposition of costs.

We shall first discuss and dispose of the issues raised by the plaintiff's appeal.

Good Faith

The Master found, and the District Court adopted the finding, that the defendants were not wilful and deliberate

infringers. The plaintiff assigns this conclusion of law as error. The District Court in its opinion stated that the defendants "took the advice of legal counsel who not only examined the plaintiff's patent, but the plaintiff's process in the manufacture of laminated glass, after which defendants' counsel gave to the defendants his legal opinion that their method of manufacturing strengthened glass did not infringe the plaintiff's patent." We do not accept as a general principle of law that the advice of counsel, prior to an infringement, precludes further inquiry into the good faith of an alleged infringer. It is not necessary, however, [fol. 1155] to place reliance upon such a principle in order to find that the defendants in the instant case did act in good faith. Although there is sufficient evidence on both sides of this controversy to raise a valid issue, we are constrained to the conclusion that there is ample evidence to support the findings of the master and the District Court. The error assigned on this issue is not sustained.

Method of Stating Account

The defendants stated the account by deducting the total of the costs and expenses incurred in the manufacture of laminated glass during the entire accounting period from the total receipts from the sale of laminated glass for the same period. They thus treated the infringement as one continuing course of conduct and offset the profits derived from some sales by losses sustained from others. The master adopted this method and was sustained by the District Court. The plaintiff assigns this as error. It contends that proper patent accounting procedure requires that, where the infringement of a product claim is being accounted for, each sale constitutes a separate infringement; that the profit derived from each sale must be accounted for and turned over to the owner of the patent; and that if some sales result in losses, the infringer must bear those losses and may not offset the loss-incurring sales against the profitable sales. The plaintiff submitted an independent account in which it enumerated the individual sales made by Duplate, giving the name of the customer, the number of square-feet of glass sold, and the net sales price. It set out the cost of material and labor of each sales unit on a monthly average basis computed by the

same method as that used by the defendants in keeping their books, and allocated a proportion of the factory and general overhead to each sales unit. It offset the monthly average cost per square foot of laminated glass against [fol. 1156] the specific price per square foot for which the laminated glass was sold. It thus determined which sales were made at a profit and which at a loss. The master refused to adopt this method because of his conclusion that average costs do not reflect specific costs.

The plaintiff's method of separating the sales into profitable and unprofitable sales has been approved by us in McKee Glass Co. v. Fry Glass Co., 248 F. 125, wherein Judge Woolley speaking for this court said:

"The subject-matter of the reference to the master was injuries sustained by the complainant arising directly from infringing sales. These were measured by profits earned and damages inflicted. As the infringing sales were of two classes, those creating profits and those carrying losses, the master's inquiry was directed to the amount of profits on the former, and the measure of damages on the latter, or on both. Against the defendants' contention that the complainant was entitled only to net profits on all sales after deducting losses on some from profits on others, the master held, we think correctly, that, as the complainant was not a quasi partner of the infringers losses incurred by the defendants through their wrongful invasion of the complainant's patent were not chargeable to the complainant (Crosby Valve Co. v. Safety Valve Co., 141 U. S. 441, 12 Sup. Ct. 49, 35 L. Ed. 809), and, therefore, the complainant was entitled to all profits realized by the defendants without deduction of any losses they had sustained. We find no error in either the theory or amount of this finding."

See also Electrical Engineers Equipment Co. v. Champion Switch Co., 49 F. (2d) 359. The reason assigned by the master for refusing to follow this method is that in the instant case average costs do not reflect specific costs. We do not find any substantial factors in the instant case on this issue which differentiate it from the cited cases. The [fol. 1157] account must be restated in accordance with the plaintiff's method.

Rejects and Returns

Pyralin Losses:

The contentions upon this issue are somewhat allied to the one just discussed. The defendants were allowed to take credit in the amount of $1,477,364.84 for rejects and returns of defective laminated glass and $219,036.93 for pyralin losses. The plaintiff objects to these allowances, contending that the accounting infringer may not offset against the profit which it made on the sale of the infringing product the loss which it sustained in the manufacture of such of the product as had not been sold, because defective, or if sold, had been returned for the same reason. We think that this issue was decided adversely to the defendants here, in Crosby Steam Gage & Valve Co. v. Consolidated Safety Valve Co., 141 U. S. 441, 457, where the Supreme Court said:

"As for the contention that the destroyed valves ought to form a credit against the profits actually realized by the defendant on other valves, it is sufficient to say that the only subject of inquiry is the profit made by the defendant on the articles which it sold at a profit, and for which it received payment, and that losses incurred by the defendant through its wrongful invasion of the patent are not chargeable to the plaintiff, nor can their amount be deducted from the compensation which the plaintiff is entitled to receive. The Cawood Patent, 94 U. S. 695; Elizabeth v. Pavement Co., 97 U. S. 126, 138; Tilghman v. Proctor, 125 U. S. 136."

We are of the opinion that the account must be restated so as to omit credits for rejects and returns and for pyralin losses.

[fol. 1158]. Patents:

Pittsburgh supplied Duplate with all of the plate glass used by the latter for laminated glass. In the manufacture of plate glass Pittsburgh used a so-called "continuous process" which embodied the teachings of twenty-six patents which Pittsburgh owned and which greatly reduced the cost of manufacture of plate glass. However, in billing

Duplate, Pittsburgh calculated the cost of the plate glass as though it had been manufactured without the patented process. The master allowed Pittsburgh credit for the use of the twenty-six patents and was sustained by the District Court.

The sales value of the laminated glass was in no way enhanced by the fact that one of its component parts, plate glass, could be manufactured more cheaply by the use of the "continuous process" than without such process. The principle has been firmly established in patent law that where the entire commercial value of a mechanism or product arises from the patent improvement, the owner of the patent is entiled to recover from the infringer the total profits derived from the manufacture, use or sale of the mechanism or product. Westinghouse Co. v. Wagner Mfg. Co., 225 U. S. 604, Crosby Valve v. Safety Valve, supra, Carborundum Co. v. Electric Smelting & Aluminum Co., 203 F. 976, Conroy v. Penn Electrical & Mfg. Co., 199 F. 427, Wales v. Waterbury Mfg. Co., 101 F. 126. We conclude that the account must be restated so as to set forth the actual cost of the plate glass without credit for the use of the patents involved in the "continuous process".

Federal Income Taxes:

The master found that Pittsburgh was entitled to a deduction for Federal income taxes in the amount of $216,540.76. The Second Circuit in Stromberg Motor Devices [fol. 1159] Co. v. Zenith-Detroit Corp., 73 F. (2d) 62, and this Circuit in MacBeth-Evans Glass Co. v. L. E. Smith Glass Co., 23 F. (2d) 459, have held that Federal income taxes actually paid may be deducted as a proper item of expense in a patent accounting. We do not think that Larson Co. v. Wrigley Co., 277 U. S. 97, relied upon by the plaintiff as authority for the denial of the right to deduct taxes is determinative, for whereas the defendant in that case was found guilty of a conscious and deliberate infringement, the defendants in the instant case infringed in good faith. We conclude that the District Court did not err in approving the master's allowance for Federal income taxes paid by Pittsburgh and the error assigned on this issue is not sustained.

Interest on Investment:

The master found as a fact that the amount involved in interest on investment was $358,784.77 and that Pittsburgh was entitled to an allowance for such interest. The plaintiff, conceding that the weight of authority is contra, asks this court to hold that under the circumstances of the case Pittsburgh should be precluded from credit as to this item because the infringement was wilful and deliberate. Inasmuch as we sustain the ruling of the court below that the defendants' infringement was not wilful and deliberate, we think that this is a case in which to apply the well-established principle that an infringer is entitled to a reduction of profits by allowance of interest on invested capital. Stromberg-Motor Devices Company v. Zenith-Detroit Corp., supra. We think that the District Court did not err in allowing the defendant to take credit for interest on invested capital and the error assigned on this issue is not sustained.

[fol. 1160] Special Cutting Loss:

The master allowed Pittsburgh credit for $178,545.86 as a so-called special cutting loss. Pittsburgh based its claim on an alleged loss due to the following situation:—

Glass is sold by the glass industry in bracket sizes. Duplate required great quantities of 1/8" plate glass of a certain bracket in its manufacture of laminated glass for automobile purposes. In supplying Duplate orders Pittsburgh was left with a large quantity of relatively small sizes in strips and brackets up to the 1' to 2' 8" bracket, which it could not sell to Duplate, for which there was a restricted market and which sold for much less than the larger brackets. Pittsburgh contends that these strips and smaller brackets sold for less than cost and that part of the loss should be allocated to Duplate sales. The plaintiff contends that the strips and small brackets sold for more than cost and that Pittsburgh's claim is for a loss of expected profits rather than for an actual loss. Their respective methods of determining the specific manufacturing cost per square foot of 1/8" plate glass for the year 1928 is set out below:

	Pittsburgh	Plaintiff
Actual Cost	$.15590	$.15590
Income Tax	.02267	
Interest on Investment	.02553	
Patents	.12474	
Specific Cost of 1/8" plate glass per square foot	$.32884	$.15590

The average selling price in 1928 for the strips and smaller brackets was $.20644 per square foot. If the specific manufacturing cost of 1/8" plate glass was $.32884 per square foot, as contended by Pittsburgh, there was a loss; and if [fol. 1161] $.15590 per square foot, as contended by the plaintiff, there was a profit. We have already discussed the issues as to allowances for income tax, interest on investment, and patents and have concluded that allowances were properly made for the first two items and improperly made for the last item. We would therefore recalculate the specific manufacturing cost per square foot of 1/8" plate glass for the year 1928 as follows:

Actual Cost	$.15590
Income Tax	.02267
Interest on Investment	.02553
Patents	
Specific Cost of 1/8" plate glass per square foot	$.20410

With a sale price of $.20644 per square foot and a manufacturing cost of $.20410, there was a slight margin of profit rather than a loss on the sale of strips and smaller brackets for the year 1928. The account must be restated so as to omit the allowance for special cutting loss in 1928, and if, in fact, no loss occurred on the sale of strips and smaller bracket glass during 1929 and the first five months in 1930, the account must be restated as of that period.

The defendants contend that the District Court erred in awarding general damages to the plaintiff; that no damages should have been awarded, inasmuch as the defendants were precluded from examining the plaintiff's books; that the general damages awarded were in fact excessive; that no interest should have been allowed prior to the date

of the master's report; and that costs should be apportioned between the plaintiff and the defendants. We shall discuss those contentions in the order mentioned.

[fol. 1162] General Damages:

The question as to the power to award general damages must be determined by a construction of Rev. Stat. 4921 (35 U. S. C. A. 70). The pertinent portion of this statute provides:

"The several courts vested with jurisdiction of cases arising under the patent laws shall have power to grant injunctions according to the course and principles of courts of equity, to prevent the violation of any right secured by patent, on such terms as the court may deem reasonable; and upon a decree being rendered in any such case for an infringement the complainant shall be entitled to recover, in addition to the profits to be accounted for by the defendant, the damages the complainant has sustained thereby, and the court shall assess the same or cause the same to be assessed under its direction. If on the proofs it shall appear that the complainant has suffered damage from the infringement or that the defendant has realized profits therefrom to which the complainant is justly entitled, but that such damages or profits are not susceptible of calculation and determination with reasonable certainty, the court may, on evidence tending to establish the same, in its discretion, receive opinion or expert testimony, which is hereby declared to be competent and admissible, subject to the general rules of evidence applicable to this character of testimony; and upon such evidence and all other evidence in the record the court may adjudge and decree the payment by the defendant to the complainant of a reasonable sum as profits or general damages for the infringement."

This section refers to the right of the owner of a patent to recover profits and damages. "In patent nomenclature what the infringer makes is 'profits', what the owner of the patent loses by such infringement is 'damages'." Diamond Stone Sawing Machine Co. v. Brown, 166 F. 306. A finding that the infringer made no profits does not preclude

[fol. 1163] an award of damages. Marsh v. Seymour, 97 U. S. 348. Even though the owner of the patent cannot prove his losses specifically he may nevertheless recover damages on a reasonable royalty basis. Dowagiac Mfg. Co. v. Minnesota Plow Co., 235 U. S. 641. Merrell Soule Co. v. Powdered Milk Co., 7 F. (2d) 297. United States Frumentum Co. v. Lauhoff, 216 F. 610.

The defendants contend that no award of general damages may be made in the instant case because the plaintiff failed to prove that specific damages were not, in the terms of the statute, "susceptible of calculation and determination with reasonable certainty." They rely upon Wallace & Tiernan Co. v. City of Syracuse, 45 F. (2d) 693, which holds that proof that the plaintiff's losses cannot be computed is a condition precedent to an award of general damages. That case was distinguished on its facts by the same court in Cincinnati Car Co. v. New York Rapid Transit Corp., 66 F. (2d) 592. In both the Cincinnati case, supra, and the instant case, the proofs as to specific damages were inadequate. In the Cincinnati case, supra, the Court allowed an award of general damages. We think that under the circumstances which existed in the instant case the District Court was within its statutory authority to award general damages based on a reasonable royalty. The defendants' contention on this issue is not sustained.

Examination of Plaintiff's Books:

In the course of the hearing before the master the plaintiff refused to open its books to an accounting. The defendants claim that this affects the entire accounting. The trial court disregarded this contention. We might have deemed this error, had the plaintiff been attempting to recover [fol. 1164] profits for sales which it did not make or could not make because the defendants had taken customers from it. The bill and supplemental bill, however, indicate to us that the plaintiff has not attempted to recover from the defendants damages or profits for its loss of customers. The prayers of the bill and supplemental bill are (1) that the defendant be compelled to account for all strengthened (sic. laminated) glass embodying any of the improvements of the patent which it manufactured and sold etc.; (2) that the defendant be compelled to account for and pay to the plaintiff all profits, gains, and savings by it acquired and the actual damages suffered by the plaintiff from the in-

fringement; (3) that the defendant and its officers be restrained from further violating the plaintiff's patent rights; (4) that the defendant be decreed to pay the costs of suit; (5) that the defendant be restrained from making and selling the product; (6) that the defendant be restrained from further infringing the patent; (7) that a writ of subpoena ad respondendum issue. There is no prayer for an accounting of damages for loss of sales by the plaintiff occasioned by acts of the defendant. We think that inasmuch as the question of damages through the loss of sales was not raised by the pleadings, the matter of an examination of the plaintiff's books by the defendants was not vital to the issues raised by the plaintiff in its two bills. We find no error in the ruling of the court below on this issue.

Excessive Award:

The District Court, acting upon the recommendation of the master, awarded damages based upon a royalty of ten cents a square foot for all laminated glass manufactured by Duplate. The defendants contend that the royalty is unreasonable and the award excessive. They reason that the [fol. 1165] rate paid by Ford Motor Company the only licensee of any importance, should be the maximum measure of the general damages to be imposed upon the defendants. It is our view that no general conclusions may be drawn from the royalty rate paid by Ford Motor Company, since that company undertook an advertising program for Triplex which would have been beyond the financial ability of either Triplex or the average licensee. The defendants also assign error to the master's ruling that Pittsburgh could charge only the manufacturing cost of one-eighth inch glass and not the market price. We agree with the master, for the reasons well stated by him, that the applicable authority is not Barber Asphalt Paving Co. v. Standard Asphalt & Rubber Co., 30 F. (2d) 281, cited by the defendants. We are inclined to give great weight to the master's fact findings. Armstrong v. Belding Bros. Co., 297 F. 728 (certiorari denied 265 U. S. 585). As was said by Judge Stone in Levin Bros. v. Davis Mfg. Co., 72 F. (2d) 163, 165, "Determinations of fact matters by a master which are confirmed by the trial court should not be overthrown on appeal except on the clearest showing of mistake. * * *" The defendants' contention of error on this issue is not sustained.

Interest on Award:

The accounting period ran from January 1, 1928, to May 30, 1930, the date when infringement ceased. The District Court computed interest from the end of the infringement. The defendants contend that the interest should have been computed from the date of the master's report, January 12, 1934, when the general damages were first liquidated. We find cases of equal authority both ways. National Brake & Electric Co. v. Christensen, 38 F. (2d) 721. Rockwood v. General Fire Extinguisher Co., 37 F. (2d) 62. National [fol. 1166] Tube Co. v. Mark, 10 F. (2d) 430. Our view is that since the case is one in equity, the matter of interest is one within the court's discretion. Merrell Soule Co. v. Powdered Milk Co., 7 F. (2d) 297. Whatever moved the master to recommend and the court to decree interest from the time when the infringement ceased does not appear, but we find nothing in the record on which to base a ruling that the court abused its discretion, and its ruling is sustained.

Costs:

The District Court taxed the costs entirely against the defendants. In equity the allowance of costs is within the discretion of the trial court. Ladd v. Tallman, 59 F. (2d) 732. Minar v. Hammett, 53 F. (2d) 149 (Certiorari denied 284 U. S. 682). Federal Surety Co. v. A. Bentley & Sons, 51 F. (2d) 24. Unless exceptional circumstances exist, as in Jacobs v. Iodent Chemical Co., 41 F. (2d) 637, the award will not be disturbed in the absence of an abuse of discretion. No argument has been advanced to persuade us that the court abused its discretion, and its ruling is sustained.

On the plaintiff's appeal, insofar as the decree of the District Court is in accord with the rulings hereinabove set forth, it is affirmed and insofar as we have found error in the Court's rulings the decree is reversed with directions to modify the decree in accordance with this opinion. Insofar as error is assigned upon the defendants' appeal, the decree is affirmed.

A true Copy. Teste:

—— ——, Clerk of the United States Circuit Court of Appeals for the Third Circuit.

[fol. 1167] IN UNITED STATES CIRCUIT COURT OF APPEALS FOR THE THIRD CIRCUIT, OCTOBER TERM, 1934

No. 5606

DUPLATE CORPORATION and PITTSBURGH PLATE GLASS COMPANY, Defendants-Appellants,

v.

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA, Plaintiff-Appellee

Appeal from the District Court of the United States for the Western District of Pennsylvania

ORDER AFFIRMING DECREE

This cause came on to be heard on the transcript of record from the District Court of the United States, for the Western District of Pennsylvania, and was argued by counsel.

On consideration whereof, it is now here ordered, adjudged, and decreed by this Court that the decree of the said District Court in this cause be, and the same is hereby affirmed, with costs, except in so far (1) as it refers to the defendants' method of accounting, (2) as it allows credit for rejects and returns and pyralin losses, and (3) as it allows credit for the use of the patents involved in the "continuous process." As to these three items, the said District Court is directed to order a restatement of defendants' account in accordance with the terms of the opinion of this Court.

J. W. Thompson, Circuit Judge.

Philadelphia, December 12, 1935.

[fol. 1168] IN UNITED STATES CIRCUIT COURT OF APPEALS FOR THE THIRD CIRCUIT, OCTOBER TERM, 1934

No. 5626

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA, Plaintiff-Appellant,

v.

DUPLATE CORPORATION and PITTSBURGH PLATE GLASS COMPANY, Defendants-Appellees

Appeal from the District Court of the United States, for the Western District of Pennsylvania

ORDER AFFIRMING DECREE

This cause came on to be heard on the transcript of record from the District Court of the United States, for the Western District of Pennsylvania, and was argued by counsel.

On consideration whereof, it is now here ordered, adjudged, and decreed by this Court that the decree of the said District Court in this cause be, and the same is hereby affirmed, with costs, except in so far (1) as it refers to the defendants' method of accounting, (2) as it allows credit for rejects and returns and pyralin losses, and (3) as it allows credit for the use of the patents involved in the "continuous process." As to these three items, the said District Court is directed to order a restatement of defendants' account in accordance with the terms of the opinion of this Court.

J. W. Thompson, Circuit Judge.

Philadelphia, December 12, 1935.

[fol. 1169] Clerk's certificate to foregoing transcript omitted in printing.

[fol. 1170] **PLAINTIFF'S EXHIBIT NO. 1**

Summary of Monthly Shipments

(Not Printed)

PLAINTIFF'S EXHIBIT NO. 2

Pink Slips—Order No. M. S. 1019, November 26, 1929

(Not Printed)

PLAINTIFF'S EXHIBIT NO. 3

Pink Slips—Order No. 686

(Not Printed)

PLAINTIFF'S EXHIBIT NO. 4

White Slips—Original Invoice

(Not Printed)

(Here follows 1 photo, side folio 1171.)

PLAINTIFF'S EXHIBIT NO. 5.

Four Documents: Order, Invoice, Voucher and Cancelled Check.

(Order Only Printed.)

(copy)

OFFICE COPY

PITTSBURGH PLATE GLASS CO.

Pittsburgh, Pa. 8/30/28

Show Order Number on Invoice, Correspondence and Packages

478½
69/102

Rasner&Ding r,
City

Please furnish us with the articles named below.

MAIL INVOICE and B/L to Purchasing Department, Frick Building, Pittsburgh, Pa.

9/15

Furnish 1 bag clamp consisting of:-

1 steel shape
1 pipe
2 handles

7.90

As per sketch att.

Please Rush

JOB

Ship via bag clamp

To Pittsburgh Plate Glass Co.
Safety
Creighton, Pa.

and oblige
Pittsburgh Plate Glass Co.

1171 Superintendent

[fol. 1172] **PLAINTIFF'S EXHIBIT NO. 5-A**

Original Order No. 4854 of Fleetwood Body Company

(Not Printed)

(Here follow 2 photos, side folios 1173 and 1174.)

PLAINTIFF'S EXHIBIT NO. 6.

GOODS SHIPPED AT PURCHASER'S RISK OF BREAKAGE, UNLESS INSURANCE IS SPECIFICALLY EFFECTED
ALL CLAIMS MUST BE MADE WITHIN THREE DAYS FROM RECEIPT OF GOODS

Pittsburgh Plate Glass Company.

GLASS - MIRRORS - PAINTS

TERMS 30 DAYS NET
1% CASH 10 DAYS

1902 FRICK BLDG.

CABLE ADDRESS
"GLASSPIT"

PITTSBURGH, PA. Nov 1929. 19

SOLD TO Duplate Corp.
Creighton, Pa.

CAR NO

WORKS 1/8 OUR ORDER

SHIPPED TO

CASES YOUR ORDER

SHIPPED VIA

MEMO	PLATES	SIZE	QUALITY	FEET		PRICE	AMOUNT	TOTAL
			Mir Glaz. 7/64"	1/28B	11806-5-4	.39	4604.51	
				28/5	35846-3-4	.45	16130.85	
				5/7	3175-8-0	.49	1556.08	
				7/10	983-0-8	.51	501.36	
			Glaz. 7/64"	1/28A	83-0-0	.21	17.43	
				1/28B	21070-9-4	.35	7374.77	
				28/5	114624-6-4	.39	44703.97	
				28/5A	30-6-8	.39	11.92	
				5/7	10128-7-0	.42	4254.00	
				7/10	2494-10-8	.43	1072.80	
				10/15	893-6-0	.44	393.14	
			silv. 1. 7/64"	1/28A	31-6-0	.36	11.34	
				1/28B	10-0-0	.49	4.90	
				28/5	60-0-0	.55	33.00	
				5/7	57-4-0	.61	34.97	
			Mir Glaz. "	1/28A	332-6-0	.26	86.45	
				1/28B	6150-0-0	.39	2398.50	
				28/5	14360-2-0	.45	6462.08	
				5/7	9242-5-4	.49	4528.80	
				7/10	740-4-8	.51	377.60	
							94558.56	
					less 10%		85102.61	
					less 1%		851.03	
								$84251.58

Paid in duplicate

12/4/29 Voucher 5765

PLAINTIFF'S EXHIBIT NO. 6-A.

GOODS SHIPPED AT PURCHASER'S RISK OF BREAKAGE UNLESS INSURANCE IS SPECIFICALLY EFFECTED
ALL CLAIMS MUST BE MADE WITHIN THREE DAYS FROM RECEIPT OF GOODS

Pittsburgh Plate Glass Company.

GLASS - MIRRORS - PAINTS

TERMS: 30 DAYS NET ~~2% CASH 10 DAYS~~ 2225 GRANT BLDG. CABLE ADDRESS "GLASSPIT"

PITTSBURGH, PA. June 19

SOLD TO Pittsburgh Safety Glass Co.
Creighton, Pa.

CAR NO.

WORKS OUR ORDER

SHIPPED TO

CASES YOUR ORDER

SHIPPED VIA

MEMO	PLATES	SIZE	QUALITY	FEET		PRICE	AMOUNT	TOTAL
			Glas 1/8" Stock	1/28a	1218-0-0	20	243.60	
			for Fisher Body	1/28b	902-6-0	30	270.75	
				28/5	36906-8-4	33	12178.88	
				5/7	8618-4-0	36	3102.60	
			Glas 1/8"	1/28b	8-4-0	30	2.50	
			Silv. II 7/64	1/28b	12-2-8	39	4.77	
				28/5a	6-1-4	44	2.68	
				28/5	188-8-8	44	83.04	
				5/7	33-0-0	49	16.17	
			Glas 7/64	4"	741-4-4	18	133.44	
				6"	30-6-0	18	5.49	
				7"	23-1-8	18	4.17	
				8"	266-2-8	18	47.92	
				9"	6-6-0	18	1.17	
				1/28a	685-2-8	20	137.04	
				1/28b	1065-11-4	30	319.78	
				28/5a	5-6-8	33	1.83	
				28/5	11420-11-4	33	3768.91	
				5/7	1513-0-4	36	544.69	
				7/10	608-1-4	37	224.26	
				10/15	70-6-0	38	26.79	
			Fl[illegible]4	9"	225-0-0	18	40.50	
			Gla[illegible]/64	1/28a	4-0-0	20	.80	
			forFisher Body	1/28b	2554-8-0	30	766.40	
				28/5	20205-3-8	33	6667.75	
				5/7	1791-10-8	36	645.06	
								$29341.01

1174

[fol. 1175] **PLAINTIFF'S EXHIBIT NO. 7**

Sample of Pink Slips

(Not Printed)

PLAINTIFF'S EXHIBIT NO. 7-A

Sample of Duplicate Slips

(Not Printed)

PLAINTIFF'S EXHIBIT NO. 7-B

Sample of Shop Ticket Slips

(Not Printed)

PLAINTIFF'S EXHIBIT NO. 7-C

Sample of Triplicate Slips

(Not Printed)

PLAINTIFF'S EXHIBIT NO. 7-D

Sample of Quadruplicate Slips

(Not Printed.)

(Here follow 3 photos, side folios 1176, 1177 and 1178.)

PLAINTIFF'S EXHIBIT NO. 8.

PITTSBURGH SAFETY GLASS COMPANY

CREIGHTON, PENNA. JANUARY, 1929

ABSTRACT OF STOCK AND DEPARTMENTAL ACCOUNTS REGULAR DUPLATE

			FEET	PRICE	AMOUNT
7/64" POLISHED PLATE GLASS A/C					
Inventory on hand 1/1/29			44656	.42405	18940.60
Received Current Month	Works #1	792346			
	Reclamation	-	792346	.41820	331369.48
			837011	.41851	350300.08
Deduct Shrinkage		61341			
Stock Loss		967			
Transferred to A. D. Reg. Duplate		734216			
A. D. Bullet Proof		-			
Research		-			
Total transferred			796514	"	333361.56
Inventory at close of month			40497	"	16948.53
ASSEMBLING DEPARTMENT					
Inventory on hand 1/1/29			4171	1.1045	4606.87
Assembled Glass Production			367108	1.2714	466728.10
Total			371279	1.2696	471334.97
Transferred to Pressing Dept.			368816	"	468208.22
Inventory at close of month			2463	"	3126.75
PRESSING DEPARTMENT					
Inventory on hand 1/1/29			3207	1.7782	5702.55
Received from Assembling Dept. (Add M & L)			368816	1.3351	492403.29
Plus Rejects from Duplate Stock Account		4098	-		7390.56
Total			372023	1.3588	505496.40
Sales Rejects - Current Month			-		39858.704
			372023		545365.10
Deduct Pressing Dept. Loss			90752		No Value
			281271	1.9389	545365.10
Transferred to Research Experiments		159			308.29
" " Edging Department		280228			543342.79
Total transferred			280387	"	543651.08
Inventory at close of month			884	"	1714.02
RECLAMATION DEPARTMENT					
Received from Salvage Stock			18917	-	No Value
Material and labor reclaiming			-		8053.06
Total			18917	.0426	8053.06
Deduct Shrinkage			7153		No Value
			11764	.0685	8053.06
Transferred to Edging Department			11764		8053.06
Inventory on hand 1/31/29			-		-
EDGING DEPARTMENT					
Inventory on hand 1/1/29			17261	1.7782	30675.43
Received from Reclamation Dept.			11764	.6685	8053.06
Received from Pressing Dept.			280228	1.9389	543342.79
Total			309243	1.8822	582071.28
Transferred to Unedged Glass a/c (Skgs.)		4984-0	9324.64		
Rough Edge a/c "		4459-6	8398.88		
Smooth " a/c "		421-6	793.36		
Polished " a/c "		74-0	139.29		
Duplate Stock-Unedged		166011-0	312473.48		
" " Edged		111280-0	209456.29		
Total transferred			287200		540590.84
Inventory at close of month			22043		41490.36

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PITTSBURGH SAFETY GLASS COMPANY

CREIGHTON, PENNA. JANUARY 1929

Sheet -2-

ABSTRACT OF STOCK AND DEPARTMENTAL ACCOUNTS

			REGULAR DUPLATE FEET	PRICE	AMOUNT
DUPLATE STOCK - [illegible] GLASS ACCOUNT					
Inventory on hand 1/1/29			37004-3	1.7938	[illegible]
Received from Edging Dept. (Add M & L)			166011-0		[illegible]
Sales Rejects (6345-5)					[illegible]
			203035-3		[illegible]
Unedged Glass Shrinkage-E. D. (4954)		9324.64			(9324.64)
			203035-3	2.0[illegible]	[illegible]
Transferred to: Pressing Dept. Raj. in stock	3326	[illegible]			
Industrial Samples	96-11	195.47			
Duplate Experiment					
Cost of Sales	163266-10	329024.61			
Total Transferred			166689-9		[illegible]
Inventory at close of month			36345-6		73085.09
DUPLATE STOCK - [illegible] GLASS ACCOUNT					
Inventory on hand 1/1/29			38566-3	1.7938	69181.77
Received from Edging Dept.			111280-0	1.[illegible]	[illegible]
Total			149846-3	1.[illegible]	278638.06
Deduct Loss in Stock (No Salvage)					
Transferred to: Pressing Dept. Raj. in Stock	772	1423.72			
Rough Edge Account Raj. "	341	[illegible]			
Smooth " " " "	32	59.[illegible]			
Polished " " " "	4	7.[illegible]			
Industrial Samples	39	72.53			
Duplate Experiment	-				
Cost of Sales	127630-3	237345.13			
Total Transferred			128818-3		239536.64
Inventory at close of month			21028-0		39181.42

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PITTSBURGH SAFETY GLASS COMPANY

CREIGHTON, PENNA. JANUARY, 1929

ABSTRACT OF STOCK AND DEPARTMENTAL ACCOUNTS REGULAR DUPLATE

				LIN. IN.	PRICE	AMOUNT
ROUGH EDGE ACCOUNT						
Inventory on hand 1/1/29				764498	25.40363	19421.03
Roughed Current Month				1861238	3.03243	5645.94
Total				2625736	9.54665	25066.97
Glass Shrinkage - Operating (4428-6)				-		8393.88
Plus Rejects from Duplate Stock a/c (261)				-		628.87
Sales Rejects - Current Month (3828)				-		6866.90
	Smooth Edge a/c	1042	16.26	2625736	15.59815	40966.62
	Polished " "	163	2.54			
Transferred	Cost of Sales	2212818	34517.35			
to	Research Dept.	14448	225.36			
	Industrial Samples	322	5.65			
	Loss in Stock	-				
Total transferred at above average				2228231	"	34787.80
Inventory at close of month				396808	"	6189.42
SMOOTH EDGE ACCOUNT						
Inventory on hand 1/1/29				686436	7.02945	4826.27
Smoothed Current Month				1720058	3.71496	6389.97
Total				2406489	4.58041	11216.24
Glass Shrinkage - Operating (421-6)				-		793.36
Rough Edge Loss on Smooth Edge Skge.				-		16.76
Plus Rejects from Duplate Stock (32)				-		69.01
Sales Rejects - Current Month (362)				-		845.14
	Polished Edge a/c	163	.86	2406489	5.29108	12732.41
	Cost of Sales	2007482	10621.71			
Transferred	Research Dept.	12064	63.83			
to	Industrial Samples	362	1.92			
	Loss in Stock	-				
Total transferred at above average				2020077	"	10688.32
Inventory at close of month				386418	"	2044.09
POLISHED EDGE ACCOUNT						
Inventory on hand 1/1/29				688180	3.54098	2426.14
Polished Current Month				1721146	1.87954	3235.00
Total				2406326	2.35261	5661.14
Glass Shrinkage - Operating (74-0)				-		159.21
Rough Edge Loss on Pol. Edge Skge.				-		2.54
Smooth " " " " "				-		.86
Plus Rejects from Duplate Stock (4)				-		7.28
Sales Rejects - Current Month (68)				-		114.48
	Cost of Sales	2007482	4943.89	2406326	2.46258	5928.70
Transferred	Research Dept.	12064	28.71			
to	Industrial Samples	362	.89			
	Loss in Stock	-				
Total transferred at above average				2019908	"	4974.19
Inventory at close of month				386418	"	951.51

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[fol. 1179] **PLAINTIFF'S EXHIBIT NO. 9**

Duplate Corporation

Statements

January, 1929

Lybrand Ross Bros. & Montgomery, Accountants and Auditors

Pittsburgh Office

March 30, 1931.

Index

	Orig. Mss. pages	Printed pages
Schedule of Gross Sales, Allowances and Adjustments, and Net Sales	1-3	933
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Cost of Duplate Sales	6	936
Detail of Contested Items Eliminated from Cost of Duplate Sales	7	937
Detail of Various Expenses (Prepared from Company's report)	8-9	938

DUPLATE

SCHEDULE of GROSS SALES, ALLOWA

Jan

Number of Invoices	Invoiced to	Shipped to	Car Manufacturer	Quality	Gross Sales Duplate Corporation to Pittsburgh Plate Glass Company: Area	Amount	Rate per Sq.ft.	Gross Sales Pittsburgh Plate Glass Company to Customers: Area	Amount	Rate per Sq.ft.
4	Detroit Warehouse	Ainsworth Manufacturing Co.	Dodge	Plate	204-2	$510.41	$2.50	204-2	$510.41	$2.50
			Chrysler	"	583-4	1 458.34	2.50	583-4	1 458.34	2.50
			"	"	1 638-0	4 095.00	2.50	1 638-0	4 095.00	2.50
								Edgework	394.80	
1	do	Briggs Manufacturing Co.	"	"	8 503-6	17 007.00	2.00	8 503-6	17 007.00	2.00
19	do	Chrysler Corp.	"	"	83-4	200.00	2.40	83-4	200.00	2.40
1	do	do	"	"	134-10	337.08	2.50	134-10	337.08	2.50
1	do	Jos. N. Smith & Co.	"	"	505-6	1 011.00	2.00	505-6	1 011.00	2.00
2	do	Dodge Bros.	Dodge	"						
4	Indianapolis	Martin Parry Corp.	Studebaker	"	3 138-4	7 845.84	2.50	3 138-4	7 845.84	2.50
4	Fisher Body Corp.	Fisher Body Corp.		"	1 323-3	2 315.69	1.75	1 323-3	2 315.69	1.75
17	do	do		"	92 436-6	161 763.88	1.75	92 436-6	173 291.57	1.87
15	Fleetwood Body Corp.	Fleetwood Body Corp.		"	1 328-5	2 324.74	1.75	1 328-5	2 324.74	1.75
								Edgework	226.87	
26	Detroit Warehouse	Motor Products Corp.	Hudson	"	74 515-3	186 288.13	2.50	74 515-3	186 288.13	2.50
	do	do	Fisher Body	"	20-5	51.05	2.50	20-5	51.05	2.50
	do	do	Chrysler	"	296-8	741.68	2.50	296-8	741.68	2.50
3	do	Murray Corp.	"	"	997-2	2 492.93	2.50	997-2	2 492.93	2.50
								Edgework	270.00	
14	Buffalo Warehouse	Pierce-Arrow	Pierce-Arrow	"	26 461-5	52 922.84	2.00	26 461-5	52 922.84	2.00
8	Detroit Warehouse	Jos. N. Smith & Co.	Chrysler	"	2 160-5	5 401.05	2.50	2 160-5	5 401.05	2.50
			Pierce-Arrow	"	3 300-0	8 250.00	2.50	3 300-0	8 250.00	2.50
10	Chicago Warehouse	Studebaker Corp.	Studebaker	"	50 383-7	100 767.16	2.00	50 383-7	100 767.16	2.00
1	do	do	"	"	0-11	1.38	1.50	0-11	1.38	1.50
5	Cincinnati Warehouse	Troy Sun Shade Co.	Pierce-Arrow	"	159-10	399.59	2.50	159-10	399.59	2.50
					915-5	2 288.54	2.50	915-5	2 288.54	2.50

Continued

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DUPLATE

SCHEDULE of GROSS SALES, ALLOWA

January,

Number of Invoices	Invoiced to	Shipped to	Car Manufacturer	Quality	Gross Sales Duplate Corporation to Pittsburgh Plate Glass Company: Area	Amount	Rate per Sq.ft.	Gross Sales Pittsburgh Plate Glass Company to Customers: Area	Amount	Rate per Sq.ft.
	Amesbury Br. & Foundry Co.	Amesbury Br. & Foundry Co.	Hudson	Plate	11 504-1	$28 760.20	$2.50	11 504-1	$28 760.20	$2.50
	Detroit	Locke & Co.	Chrysler	"	945-2	2 362.93	2.50	945-2	2 362.93	2.50
	Cleveland	B. & B. Manufacturing Co.		"	49-5	123.55	2.50	49-5	123.55	2.50
	Detroit	American Car & Foundry Co.		"	109-8	274.18	2.50	109-8	274.18	2.50
	L. I. City	Watson Flagg Engineering Co.		"	186-0	279.00	1.50	186-0	279.00	1.50
	Other customers:			"	563-11	1 409.79	2.50	563-11	1 409.79	2.50
				"	38-11	116.75	3.00	38-11	116.75	3.00
				"	85-0	218.13		85-0	218.13	

19	"	do	"	"	136-10	399.89	2.50	505-6	1 011.00	2.00	
1	do	do									
1	do	Jos. N. Smith & Co.	Dodge	"	505-6	1 011.00	2.00				
2	do	Dodge Bros.	Studebaker	"	3 138-4	7 845.84	2.50	3 138-4	7 845.84	2.50	
4	Indianapolis	Martin Parry Corp.		"	1 323-3	2 315.69	1.75	1 323-3	2 315.69	1.75	
4	Fisher Body Corp.	Fisher Body Corp.		"	92 436-6	161 765.88	1.75	92 436-6	175 291.87	1.89	
17	do	do									
15	Fleetwood Body Corp.	Fleetwood Body Corp.		"	1 328-5	2 324.74	1.75	1 328-5 Edgework	2 324.74 226.87	1.75	
26	Detroit Warehouse	Motor Products Corp.	Hudson	"	74 815-3	186 288.13	2.50	74 815-3	186 288.13	2.50	
	do	do	Fisher Body	"	20-8	51.05	2.50	20-8	51.05	2.50	
	do	do	Chrysler	"	296-8	741.68	2.50	296-8	741.68	2.50	
3	do	Murray Corp.	"	"	997-2	2 492.93	2.50	997-2 Edgework	2 492.93 270.00	2.50	
14	Buffalo Warehouse	Pierce-Arrow	Pierce-Arrow	"	26 461-8	52 922.84	2.00	26 461-8	52 922.84	2.00	
8	Detroit Warehouse	Jos. N. Smith & Co.	Chrysler	"	2 160-5	5 401.05	2.50	2 160-5	5 401.05	2.50	
			Pierce-Arrow	"	3 300-0	8 250.00	2.50	3 300-0	8 250.00	2.50	
10	Chicago Warehouse	Studebaker Corp.	Studebaker	"	50 383-7	100 767.16	2.00	50 383-7	100 767.16	2.00	
1	do	do	"	"	0-11	1.38	1.50	0-11	1.38	1.50	
5	Cincinnati Warehouse	Troy Sun Shade Co.	Pierce-Arrow	"	139-10	399.89	2.50	139-10	399.89	2.50	
				"	915-5	2 288.54	2.50	915-8	2 288.54	2.50	

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DUPLAT

SCHEDULE of GROSS SALES, ALLOW

January,

Number of Invoices	Invoiced to	Shipped to	Car Manufacturer	Quality	Gross Sales Duplate Corporation to Pittsburgh Plate Glass Company Area	Amount	Rate per Sq.ft.	Gross Sales Pittsburgh Plate Glass Company to Customers Area	Amount	Rate per Sq.ft
	Amesbury Br. & Foundry Co.	Amesbury Br. & Foundry Co.	Hudson	Plate	11 304-1	$28 760.20	$2.50	11 304-1	$28 760.20	$2.50
	Detroit	Locke & Co.	Chrysler	"	945-2	2 362.93	2.50	945-2	2 362.93	2.50
	Cleveland	B. & B. Manufacturing Co.		"	49-5	123.55	2.50	49-5	123.55	2.50
	Detroit	American Car & Foundry Co.		"	109-8	274.18	2.50	109-8	274.18	2.50
	L. I. City	Watson Flagg Engineering Co.		"	186-0	279.00	1.50	186-0	279.00	1.50
	Other customers:			"	563-11	1 409.79	2.50	563-11	1 409.79	2.50
				"	38-11	116.75	3.00	38-11	116.75	3.00
				"	85-0	218.13		85-0	218.13	
				"	14-7	36.46	2.50	14-7	25.52	1.75
				Bullet proof	3-5	18.79	5.50	3-5	23.94	7.00
				Plate	64-10	129.67	2.00	64-10	129.67	2.00
	Shipments to Pittsburgh Plate Glass Co. Warehouses:			"	5 317-6	11 964.38	2.25	5 317-6	11 964.38	2.25
				"	831-7	2 078.98	2.50	831-7	2 078.98	2.50
				"	369-7	554.37	1.50	369-7	554.39	1.50
				"	50-0	88.50	1.75	50-0	88.50	1.75
				"	828-10	2 072.08	2.50	828-10	2 072.08	2.50
				Bullet proof	97-5	535.79	5.50	97-5	681.94	7.00
				Plate	52-0	62.40	1.20	52-0	62.40	1.20

Continued
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DUPLATE CORPORATION

SCHEDULE of GROSS SALES, ALLOWANCES and ADJUSTMENTS, and NET SALES,

January, 1929.

Gross Sales: Duplate Corporation to Pittsburgh Plate Glass Company — Area	Amount	Rate per Sq.ft.	Gross Sales: Pittsburgh Plate Glass Company to Customers — Area	Amount	Rate per Sq.ft.	Allowances and Adjustments — Area	Amount	Rate per Sq.ft.	Sales, net of Allowances and Adjustments, but before Returns: Pittsburgh Plate Glass Company to Customers — Area	Amount	Rate per Sq.ft.	Cost, based upon averages per foot shown in Income Account	Profits	Losses
204-2	$510.41	$2.50	204-2	$510.41	$2.50	204-2	$102.08	$.50	204-2	$408.33	$2.00	$287.66	$120.67	
583-4	1 458.34	2.50	583-4	1 458.34	2.50	583-4	291.67	.50	583-4	1 166.67	2.00	821.91	344.76	
1 638-0	4 095.00	2.50	1 638-0	4 095.00	2.50	1 638-0	819.00	.50	1 638-0	3 670.80	2.241	2 307.94	1 362.86	
			Edgework	394.80										
8 503-6	17 007.00	2.00	8 503-6	17 007.00	2.00				8 503-6	17 007.00	2.00	11 981.43	5 025.57	
83-4	200.00	2.40	83-4	200.00	2.40				83-4	200.00	2.40	117.41	82.59	
134-10	337.08	2.50	134-10	337.08	2.50				134-10	337.08	2.50	189.98	147.10	
505-6	1 011.00	2.00	505-6	1 011.00	2.00				505-6	1 011.00	2.00	712.25	298.75	
3 138-4	7 845.84	2.50	3 138-4	7 845.84	2.50	3 138-4	1 569.17	.50	3 138-4	6 276.67	2.00	4 421.91	1 854.76	
1 323-3	2 315.69	1.75	1 323-3	2 315.69	1.75				1 323-3	2 315.69	1.75	1 864.46	451.23	
92 436-6	161 763.88	1.75	92 436-6	173 291.57	1.896				92 436-6	173 291.57	1.896	130 243.03	45 048.54	
1 328-5	2 324.74	1.75	1 328-5	2 324.74	1.75				1 328-5	2 551.61	1.921	1 871.76	679.85	
			Edgework	226.87										
74 515-3	186 288.13	2.50	74 515-3	186 288.13	2.50	74 515-3	37 257.63	.50	74 515-3	149 030.50	2.00	104 991.99	44 038.51	
20-5	51.05	2.50	20-5	51.05	2.50	20-5	15.51	.75	20-5	38.74	1.75	28.77	6.97	
296-8	741.68	2.50	296-8	741.68	2.50	296-8	148.33	.50	296-8	593.35	2.00	418.01	175.34	
997-2	2 492.93	2.50	997-2	2 492.93	2.50	1 247-5	623.72	.50	997-2	2 139.21	2.145	1 405.00	734.21	
			Edgework	270.00										
26 461-5	52 922.84	2.00	26 461-5	52 922.84	2.00				26 461-5	52 922.84	2.00	37 284.14	15 638.70	
2 160-5	5 401.05	2.50	2 160-5	5 401.05	2.50	2 160-5	1 080.21	.50	2 160-5	4 320.84	2.00	3 044.03	1 276.81	
3 300-0	8 250.00	2.50	3 300-0	8 250.00	2.50	3 300-0	1 650.00	.50	3 300-0	6 600.00	2.00	4 649.70	1 950.30	
50 383-7	100 767.16	2.00	50 383-7	100 767.16	2.00				50 383-7	100 767.16	2.00	70 990.46	29 776.70	
0-11	1.38	1.50	0-11	1.38	1.56				0-11	1.38	1.50	1.30	.08	
159-10	399.59	2.50	159-10	399.59	2.50	159-10	79.92	.50	159-10	319.67	2.00	225.20	94.47	
915-5	2 288.54	2.50	915-5	2 288.54	2.50				915-5	2 288.54	2.50	1 290.05	998.49	

Continued

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Continued

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DUPLATE CORPORATION

SCHEDULE of GROSS SALES, ALLOWANCES and ADJUSTMENTS, and NET SALES,

January, 1929, Continued.

Gross Sales: Duplate Corporation to Pittsburgh Plate Glass Company — Area	Amount	Rate per Sq.ft.	Gross Sales: Pittsburgh Plate Glass Company to Customers — Area	Amount	Rate per Sq.ft.	Allowances and Adjustments — Area	Amount	Rate per Sq.ft.	Sales, net of Allowances and Adjustments, but before Returns: Pittsburgh Plate Glass Company to Customers — Area	Amount	Rate per Sq.ft.	Cost, based upon averages per feet shown in Income Account	Profits	Losses
504-1	$28 760.20	$2.50	11 504-1	$28 760.20	$2.50	11 504-1	$5 752.04	$.50	11 504-1	$23 008.16	$2.00	$16 209.25	$6 798.91	
945-2	2 362.93	2.50	945-2	2 362.93	2.50	916-8	458.33	.50	916-8	1 833.35	2.00	1 291.59	541.76	
									28-6	71.25	2.50	40.16	31.09	
49-5	123.55	2.50	49-5	123.55	2.50				49-5	123.55	2.50	69.63	53.92	
109-8	274.18	2.50	109-8	274.18	2.50				109-8	274.18	2.50	154.53	119.65	
186-0	279.00	1.50	186-0	279.00	1.50				186-0	279.00	1.50	262.07	16.93	
563-11	1 409.79	2.50	563-11	1 409.79	2.50				563-11	1 409.79	2.50	794.56	615.23	
38-11	116.75	3.00	38-11	116.75	3.00				38-11	116.75	3.00	54.84	61.91	
88-0	218.13		88-0	218.13					88-0	218.13	2.566	119.77	98.36	
[illegible]	[illegible]	[illegible]	14-7	98.82	1.75				14-7	98.82	1.75	[illegible]	[illegible]	

2 315.69	1.75	1 323-3	2 315.69	1.75				1 323-3	2 315.69	1.75	1 864.46	451.23	
161 765.88	1.75	92 436-6	175 291.57	1.896				92 436-6	175 291.57	1.896	130 243.03	45 048.54	
2 324.74	1.75	1 328-5	2 324.74	1.75				1 328-5	2 531.41	1.921	1 871.76	679.65	
		Edgework	226.67										
186 288.13	2.50	74 515-3	186 288.13	2.50	74 515-3	37 237.65	.50	74 515-3	149 030.50	2.00	104 991.99	44 038.51	
51.05	2.50	20-5	51.05	2.50	20-5	15.31	.75	20-5	38.74	1.75	28.77	6.97	
741.68	2.50	296-8	741.68	2.50	296-8	148.33	.50	296-8	595.36	2.00	418.01	175.34	
2 492.93	2.50	997-2	2 492.93	2.50	1 247-5	623.72	.50	997-2	2 139.21	2.145	1 405.00	734.21	
		Edgework	270.00										
52 922.84	2.00	26 461-5	52 922.84	2.00				26 461-5	82 922.84	2.00	37 284.14	15 638.70	
5 401.05	2.50	2 160-5	5 401.05	2.50	2 160-5	1 080.21	.50	2 160-5	4 320.84	2.00	3 044.03	1 276.81	
8 250.00	2.50	3 300-0	8 250.00	2.50	3 300-0	1 650.00	.50	3 300-0	6 600.00	2.00	4 649.70	1 950.30	
100 767.16	2.00	50 383-7	100 767.16	2.00				50 383-7	100 767.16	2.00	70 990.46	29 776.70	
1.38	1.50	0-11	1.38	1.86				0-11	1.38	1.50	1.30	.08	
399.89	2.50	159-10	399.89	2.50	159-10	79.92	.50	159-10	319.67	2.00	225.20	94.47	
2 288.54	2.50	915-8	2 288.54	2.50				915-8	2 288.54	2.50	1 290.05	998.49	

Continued
1

DUPLATE CORPORATION

SCHEDULE of GROSS SALES, ALLOWANCES and ADJUSTMENTS, and NET SALES,

January, 1929, Continued.

Gross Sales — Duplate Corporation to Pittsburgh Plate Glass Company		Gross Sales — Pittsburgh Plate Glass Company to Customers			Allowances and Adjustments			Sales, net of Allowances and Adjustments, but before Returns — Pittsburgh Plate Glass Company to Customers			Cost, based upon average per foot shown in Income Account	Profits	Losses
Amount	Rate per Sq.ft.	Area	Amount	Rate per Sq.ft.	Area	Amount	Rate per Sq.ft.	Area	Amount	Rate per Sq.ft.			
$28 760.20	$2.50	11 504-1	$28 760.20	$2.50	11 504-1	$5 752.04	$.50	11 504-1	$23 008.16	$2.00	$16 209.25	$6 798.91	
2 362.93	2.50	945-2	2 362.93	2.50	946-8	458.33	.50	916-8	1 833.35	2.00	1 291.59	541.76	
								28-6	71.25	2.50	40.16	31.09	
123.55	2.50	49-5	123.55	2.50				49-5	123.55	2.50	69.63	53.92	
274.18	2.50	109-8	274.18	2.50				109-8	274.18	2.50	154.53	119.65	
279.00	1.50	186-0	279.00	1.50				186-0	279.00	1.50	262.07	16.93	
1 409.79	2.50	563-11	1 409.79	2.50				563-11	1 409.79	2.50	794.56	615.23	
116.75	3.00	38-11	116.75	3.00				38-11	116.75	3.00	54.84	61.91	
218.13		85-0	218.13					85-0	218.13	3.566	119.77	98.36	
36.46	2.50	14-7	25.52	1.75				14-7	25.52	1.75	20.54	4.98	
18.79	5.50	3-5	23.94	7.00				3-5	23.94	7.00	16.24	7.70	
129.67	2.00	64-10	129.67	2.00				64-10	129.67	2.00	91.35	38.32	
11 964.38	2.25	5 317-6	11 964.38	2.25				5 317-6	11 964.38	2.25	7 492.36	4 472.02	
2 078.98	2.50	831-7	2 078.98	2.50				831-7	2 078.98	2.50	1 171.70	907.28	
554.37	1.50	369-7	554.39	1.50				369-7	554.39	1.50	520.74	33.65	
88.50	1.75	50-0	88.50	1.75				50-0	88.50	1.75	70.45	18.05	
2 072.08	2.50	828-10	2 072.08	2.50				828-10	2 072.08	2.50	1 167.82	904.26	
535.79	5.50	97-5	681.94	7.00				97-5	681.94	7.00	461.43	220.51	
62.40	1.20	52-0	62.40	1.20				52-0	62.40	1.20	73.27		$10.87

Continued
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DUPLATE

SCHEDULE of GROSS SALES, ALLOWA

January, 192

Number of Invoices	Invoiced to	Shipped to	Car Manufacturer	Quality	Gross Sales Duplate Corporation to Pittsburgh Plate Glass Company: Area	Amount	Rate per Sq.ft.	Gross Sales Pittsburgh Plate Glass Company to Customers: Area	Amount	Rate per Sq.ft.
	Shipments to Pittsburgh Plate Glass Co. Warehouses, continued:									
				Plate	89-3	$223.13	$2.50	89-3		
4	W. P. Fuller & Co.	W. P. Fuller & Co.		"	82-0	205.00	2.50	82-0	$246.00	$3.00
1	Duplate Safety Glass Co. of Canada	Duplate Safety Glass Co. of Canada		"	3-10	9.58	2.50	3-10	8.62	2.25
	Sundry customers:			"	3-9	9.37	2.50	3-9	6.56	1.75
				"	61-5	122.85	2.00	61-5	122.85	2.00
				"	521-1	1 302.71	2.50	521-1	1 302.71	2.50
				"	25-9	56.50		25-9	56.50	
				Bullet proof	7-0	38.50	5.50	7-0	49.00	7.00
	Samples:									
				Plate	145-0			145-0		
				"	0-11			0-11	1.38	1.50
				"	5-2 42-0	100.00		5-2 42-0	8.40 48.10	
	Edgework on Fisher Body and Fleetwood Body Corp. shipments included in Duplate Corp. monthly billing to Pittsburgh Plate Glass Co. not apportioned					13 823.96				
	Allowance, Fisher Body, edgework on glass returned									
	Miscellaneous warehouses, &c.									
	†In Rem on Original Exhibit				291 189-4	$625 450.86		291 189-4	$625 969.12	

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DUPLATE CORPORATION

RETURNED SALES

January, 1929.

Returned by:	Car Manufacturer	Quality	Area	Amount	Rate per sq.ft
Fisher Body Corp.		Plate	27 948-3	$48 909.43	$1.75
Chrysler Corp.		do	3 000-3	6 000.50	2.00
Fleetwood Body Corp.		do	128-6	224.88	1.75
Motor Products Corp.	Fisher Body	do	503-0	880.25	1.75
do	Hudson	do	749-0	1 498.00	2.00
Murray Body Corp.		do	47-9	119.38	2.50
Troy Sun Shade Co.		do	68-5	171.04	2.50
W. P. Fuller Co.		do	22-11	57.29	2.50
Freight on above returns				73.07	
Miscellaneous to warehouses		do	356-9	762.00	2.14
Total returned sales, per annexed income account			32 824-10	$58 696.84	

DUPLATE CORPORATION

SCHEDULE of GROSS SALES, ALLOWANCES and ADJUSTMENTS, and NET SALES,

January, 1929, Continued.

	Gross Sales Duplate Corporation to Pittsburgh Plate Glass Company		Gross Sales Pittsburgh Plate Glass Company to Customers			Allowances and Adjustments			Sales, net of allowances and Adjustments, but before Returns Pittsburgh Plate Glass Company to Customers			Cost, based upon averages per foot shown in Income Account	Profits	Losses
	Amount	Rate per Sq.ft.	Area	Amount	Rate per Sq.ft.	Area	Amount	Rate per Sq.ft.	Area	Amount	Rate per Sq.ft.			
9-3	$223.15	$2.50	89-3						89-3					
8-0	205.00	2.50	82-0	$246.00	$3.00				82-0	$246.00	$3.00	$115.84	$130.46	
3-10	9.58	2.50	3-10	8.62	2.25				3-10	8.62	2.25	5.40	3.22	
3-9	9.37	2.50	3-9	6.56	1.75				3-9	6.56	1.75	5.28	1.28	
1-5	122.83	2.00	61-5	122.83	2.00				61-5	122.83	2.00	86.77	36.06	
1-1	1 302.71	2.50	521-1	1 302.71	2.50				521-1	1 302.71	2.50	734.20	568.51	
5-9	56.50		25-9	56.50					25-9	56.50	2.194	36.28	20.22	
7-0	38.50	5.50	7-0	49.00	7.00				7-0	49.00	7.00	33.15	15.85	
1-8			145-0						145-0					
1-11			0-11	1.38	1.50				0-11	1.38	1.50	1.30	.08	
1-2 } 1-0 }	100.00		5-2 } 42-0 }	8.40 48.10					5-2 42-0	8.40 48.10	1.626 1.145	7.27 59.18	1.13	$11.08
	13 823.96													
-							$4 090.58			4 090.58†				4 090.58
-							35.65			35.65†				35.65
-5	$625 450.86		291 189-4	$625 969.12			$53 973.64		291 189-4	$571 996.48		$410 315.06	$165 828.60	$4 148.18

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DUPLATE CORPORATION

RETURNED SALES

January, 1929.

Returned by:	Car Manufacturer	Quality	Area	Amount	Rate per sq.ft
Fisher Body Corp.		Plate	27 948-3	$48 909.43	$1.75
Chrysler Corp.		do	3 000-3	6 000.50	2.00
Fleetwood Body Corp.		do	128-6	224.88	1.75
Motor Products Corp.	Fisher Body	do	503-0	880.25	1.75
do	Hudson	do	749-0	1 498.00	2.00
Murray Body Corp.		do	47-9	119.38	2.50
Troy Sun Shade Co.		do	68-5	171.04	2.50
W. P. Fuller Co.		do	22-11	57.29	2.50
Freight on above returns				73.07	
Miscellaneous to warehouses		do	356-9	762.00	2.14
Total returned sales, per annexed income account			32 824-10	$58 695.84	

DUPLATE CORPORATION

INCOME ACCOUNT, January, 1929.

	Total	Contested Items of Cost and Expense	Duplate Amount	Duplate Average per foot	Bullet Proof Amount	Bullet Proof Average per foot
Area: Gross sales	291 053-5		290 945-6		107-11	
Returns	32 824-10		32 824-10		-	
Net sales	258 228-7		258 120-8		107-11	
Gross sales, net of allowances and adjustments	$571 436.75		$570 843.21	$1.96202	$593.54	$5.50
Cost of gross sales	558 127.03	$173 792.44	383 833.18	1.31926	501.41	4.64613
Gross profit on gross sales	$13 309.72	$173 792.44	$187 010.03		$92.13	
Packing and shipping	5 387.70					
Rent	500.00					
General expense	4 099.52					
Interest on investment	5 000.00					
Taxes	666.66		26 110.71		9.69	
Depreciation	4 381.24					
Amortization	2 416.66					
Obsolescence	3 668.62					
Portion of general expense, representing reduction in cost of duplate samples	102.01	102.01				
Portion of experimental expense, representing reduction in cost of duplate stock	300.49	300.49				
Experimental expense	5 960.13	5 960.13				
Expenses of Triplex Patent Case	162.82	162.82				
Miscellaneous patent expense in general expense	26.70	26.70				
Mellon Institute Fellowship	1 875.00	1 875.00				
Commissions paid to Pittsburgh Plate Glass Co.	12 502.27	12 502.27				
	$47 049.82	$20 929.42	$26 110.71	.08974	$9.69	.08974
Profit or loss† on gross sales	$53 740.10†	$194 721.86	$160 899.32		$82.44	
Average cost of gross sales per foot				$1.40900		$4.73587
Returned sales	58 695.84		58 695.84†			
Cost of returned sales, 32,824-10 feet at $1.409		46 250.19	46 250.19			
Profit or loss† on net sales	$92 435.94†	$240 972.05	$148 453.67		$82.44	

†In Red on Original Exhibit.

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DUPLATE CORPORATION

COST of DUPLATE SALES, January, 1929.

Glass		$332 674.11
Pyralin		105 071.26
Labor		41 273.93
Labor drilling		54.38
Supervision		5 482.70
Rubber bags		3 769.66
Office expense		3 827.50
Transportation		783.28
Fuel, light and power		5 893.61
Machinery repairs		2 764.78
Building repairs		150.50
Supplies		3 085.03
Water		186.88
Templates		879.93
Miscellaneous		9 026.82
Reclaiming expense		8 053.04
Decrease in inventory		35 552.01
		558 529.27
Deduct:		
Cost of Duplate transferred to experimental expense	$627.19	
Cost of Duplate transferred to advertising (samples)	276.46	903.65
Cost of Duplate sales, per Company statement		557 625.62
Less adjustment to Company cost of sales, per details annexed		173 792.41
Cost of Duplate sales, as adjusted		$383 833.21

DUPLATE CORPORATION

DETAIL of CONTESTED ITEMS ELIMINATED from

COST of DUPLATE SALES

January, 1929.

	Number of feet	Avg. per foot	Amount
Items eliminated:			
Plate glass shrinkage loss	61 341-0	$.41852	$25 672.44
Plate glass cutting loss	957-0	.41852	400.52
Pressing department loss	90 752-0	1.26309	114 627.94
Edging department loss	9 909-0	1.25403	12 426.23
Unedged Duplate glass stock rejections	3 326-0	1.27268	4 232.93
Edged Duplate glass stock rejections	1 149-0	1.22004	1 401.83
Rough edge operation loss	-	-	4.21
Smooth edge operation loss	-	-	.65
Adjustment resulting from revaluation of inventories, based on adjusted costs	-	-	22 234.12
			$181 000.87
Less:			
Adjustment of cost of Duplate transferred to general expense account (advertising):			
From unedged Duplate stock			72.13
From edged Duplate stock			24.95
From rough edge operation			4.38
From smooth edge operation			.48
From polished edge operation			.07
Adjustment of cost of Duplate transferred to experimental expense:			
From pressing department			107.46
From rough edge operation			174.84
From smooth edge operation			15.83
From polished edge operation			2.36
Adjustment of value of reclaimed Duplate charged to edging department:			
Adjusted value	11 764-0	1.26309	14 858.99
Per Company	11 764-0†		8 053.06†
			$7 208.43
Net reduction to Company's cost of Duplate sales			$173 792.44

† Original Exhibit.

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DUPLATE CORPORATION

DETAIL of VARIOUS EXPENSES

(Prepared from Company's report)

January, 1929.

Experimental Expenses:

Mechanical research, small miscellaneous:	
Office supplies	$52.87
Miscellaneous	13.62
Salary of office help and supervision	1 012.83
Mechanical supplies	51.91
General research and development:	
Tests on autoclaves	621.62
Bag clamps, construction and tests	117.16
Bag valves	9.12
Timing device for autoclaves	63.00
Pyralin blanking	1.35
Sand blasting	1.88
Miscellaneous small jobs	116.99
Tests on assembling department (new plant)	97.88
Work for other departments:	
Pyralin punching machine for small holes	2.90
Packing boxes	8.72
Inspection lights	3.03
Conveyor for spraying	2.78
Southwork hydraulic press	1.41
Pyralin washer	42.53
Glass washers	5.77
Removing separation in Duplate	1.98
Duplate cutting:	
By sawing, heating or otherwise	30.71
Stretcher device for warehous	295.86
Glass cutting by flexible shaft method	5.75
Hot wire cutting	1 100.82
Bullet proof experiments	166.85
Edge protection	80.93
Mercury pressing	139.44

Continued

DUPLEX CORPORATION

DETAIL of VARIOUS EXPENSES, Continued.

Experimental Expenses, continued:

General research:	
Miscellaneous department costs and overhead	$795.57
General research and plant control	631.07
Rubber bags	104.75
Installation of machines for experimental work	31.25
Pressed glass	336.29
Rough edged glass	228.36
Smooth edged glass	63.83
Polished edged glass	89.71
Rent of space in building at Creighton	21.60
	$6 260.63

Miscellaneous Patent Expenses:

Copies of Bill of Complaint, patents	4.20
Government filing fee, application, J. H. Sherts; Apparatus for making composite glass and recording fee	21.00
Notary fees paid at Creighton for patent affidavits	1.50
	$26.70

Triplex Case Expense:

Traveling expenses, C. H. Biesterfeld in connection with Triplex Co. suit	54.17
Study of patents and conference re Triplex suit	108.65
	$162.82

Plaintiff's Exhibit No. 9-A

PLAINTIFF'S EXHIBIT NO. 9-A.

DUPLATE CORPORATION

Pittsburgh, Penna.

REPORT upon EXAMINATION of

Account filed in

U. S. DISTRICT COURT

TRIPLEX SAFETY GLASS COMPANY of NORTH AMERICA

vs.

DUPLATE CORPORATION.

LYBRAND ROSS BROS. & MONTGOMERY

Accountants and Auditors

Pittsburgh Office

LYBRAND, ROSS BROS. & MONTGOMERY
ACCOUNTANTS AND AUDITORS
UNION BANK BUILDING
PITTSBURGH

March 31, 1931.

Triplex Safety Glass Company of North America,
Clifton, New Jersey.

Dear Sirs:

In accordance with your instructions, we have prepared from the accounts and records of the

DUPLATE CORPORATION
Pittsburgh, Pennsylvania

statements of its sales and expenses for the period from the beginning of operations in January 1928 to May 31, 1930. Prior to March 1, 1929, the Duplate Corporation operated under the name of Pittsburgh Safety Glass Company.

The purpose of our work was to amplify and explain the account filed by the Duplate Corporation in the U. S. District Court, Western District of Pennsylvania, in connection with the patent litigation case of Triplex Safety Glass Company of North America vs. Duplate Corporation.

For convenience, an income account and supporting statements for each month during the period under review have been bound and submitted separately.

Following is a reconciliation of the loss for the period to May 31, 1930, as shown by the account filed, with the aggregate loss as shown by the monthly income accounts which we prepared:

Losses per account filed by the Duplate Corporation:	
For the year ended: December 31, 1928	$560 548.01†
December 31, 1929	434 326.60†
For the five months ended May 31, 1930	21 759.57†
Total	1 016 634.20†

Profits and losses per monthly income accounts:

	1928	1929	1930
January	$5 752.25†	$92 435.94†	$22 477.81
February		121 947.66†	11 742.74†
March	4 945.72†	78 959.70†	4 [illegible].24†
April	4 217.06†	43 351.17†	21 395.93†
May	6 698.73†	79 868.92†	1 [illegible].81
June	3 151.17	91.75	
July	48 131.71†	10 449.89†	
August	50 438.19†	27 705.04	
September	117 530.50†	45 384.92	
October	141 146.97†	18 028.21	
November	75 744.42†	25 789.09†	
December	88 469.81†	61 728.80†	
	$539 924.19†	$423 321.25†	$14 150.09†
Total			977 395.51†
Excess of loss as shown by account filed by the Duplate Corporation compared with the aggregate net losses as shown on monthly income accounts			$39 238.67†

The items making up the difference of $39,238.67, are summarized as follows:

†In Red on Original Exhibit.

Adjustments decreasing the loss as shown in account filed by Duplate Corporation:

Adjustment of interest on investment:		
Interest on investment for the year 1928 included as an expense in the account filed by Duplate Corp'n	$60 000.00	
Interest on investment for the year 1928 as shown on the monthly income accounts, adjusted,	25 000.00	
Adjustment		$35 000.00
Adjustment of sales returns representing debit memoranda issued by the Pittsburgh Plate Glass Company which were not recorded on the books of the Duplate Corporation nor included in the account filed:		
Oct 1928: Debit memo to Ainsworth Mfg. Co.		4 661.22
Jun 1929: Debit memo to Amesbury Brass & Fdy. Co.		118.42
Nov 1929: Debit memo to Amesbury Brass & Fdy. Co.		169.28
Specialty sales for the five months ended May 31, 1930, net of allowances and returns, as shown by the books of the Duplate Corporation and included in the monthly income accounts but not included in the account filed by the Duplate Corporation		70 279.63
Total		110 228.55

Adjustments increasing the loss as shown in account filed by Duplate Corporation:

Cost of specialty sales for the five months ended May 31, 1930, included in the monthly income accounts but not in the account filed by Duplate Corp'n	$63 833.83	
Reduction in net sales representing credits granted by Pittsburgh Plate Glass Co. to various customers, but not credited by Duplate Corp'n:		
Applicable to July 1929 sales	$7 055.87	
Applicable to September 1929 sales	100.18	7 156.05
Total		70 989.88
Excess of loss as shown by account filed by the Duplate Corporation compared with the aggregate net losses as shown on monthly income accounts		$39 238.67

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Following is a reconciliation of the sales, net of allowances and adjustments, as shown by the account filed, with the aggregate sales, net of allowances and adjustments, as shown by the monthly income accounts which we prepared:

		Area	Amount
Per account filed by Duplate Corporation:			
Gross sales:			
For the year ended: December 31, 1928		1 081 147-3	$2 156 147.42
1929		2 301 771-3	4 364 589.77
For the five months ended May 31, 1930		692 455-8	1 128 086.58
		4 075 374-2	7 648 823.77
Allowances and adjustments:			
For the year ended December 31:			
1928	$52 297.26		
1929	38 297.08		
For the five months ended May 31, 1930	8 331.75		
			98 926.09
Sales, net of allowances and adjustments for the two years and five months ended May 31, 1930,		4 075 374-2	$7 549 897.68
Per monthly income accounts:			
Sales net of allowances and adjustments:			
For the year ended December 31: 1928		1 081 147-3	$2 087 788.55
1929		2 301 761-8	4 358 170.59
For the five months ended May 31, 1930		752 311-10	1 205 828.15
Sales, net of allowances and adjustments for the two years and five months ended May 31, 1930		4 135 220-9	$7 651 787.29
Difference		59 846-7	$101 889.61

The difference in area and amount as shown above is explained in the following summary:

Adjustments increasing the sales, net of allowances and adjustments as shown in the account filed by Duplate Corporation:

		Area	Amount
Specialty sales, net of allowances and adjustments, for the five months ended May 31, 1930, included in the monthly income accounts but not included in the account filed by Duplate Corp'n		59 856-3	$72 641.48
Credits to the Pittsburgh Plate Glass Co., representing cash discount on sales during the period from April 1, 1929 to May 31, 1930, treated as deductions from sales in the account filed by Duplate Corp'n but included as an item of expense on the monthly income accounts		-	41 692.24
Total		59 856-3	114 333.72

Adjustments decreasing the sales, net of allowances and adjustments, as shown in the account filed by Duplate Corporation:

Reduction in net sales representing credits granted by Pittsburgh Plate Glass Co. to various customers, but not credited by Duplate Corp'n:			
Applicable to July 1929 sales	$7 055.87		
Applicable to September 1929 sales	100.18		
	7 156.05		
Various credit memoranda issued by Pittsburgh Plate Glass Co. to its customers, included by Duplate Corp'n as "sales returns" and included in the monthly income accounts as "allowances and adjustments"	5 288.06		
		-	12 444.11
		59 856-3	101 889.61
Unaccounted for difference in area		9-8†	-
Difference as above		59 846-7	$101 889.61

†In Rem on Original Exhibit.

Following is a reconciliation of returned sales for the period to May 31, 1930, as shown by the account filed, with the aggregate returned sales detailed in the monthly statements we prepared, which have been submitted separately:

	Area	Amount
Per account filed by Duplate Corporation:		
Returned sales:		
For the year ended: December 31: 1928	118 695-0	$232 023.91
1929	282 410-10	542 163.08
the five months ended May 31,1930	24 918-9	46 459.97
Returned sales for the two years and five months ended May 31, 1930	426 028-7	820 646.06
Per monthly income accounts:		
Returned sales for the two years five months ended May 31, 1930	427 971-3	812 770.95
Difference	1 942-8†	$7 875.11

The items making up this difference are summarized below:

Adjustments decreasing the returned sales as shown in the account filed by Duplate Corp'n:		
Adjustment of sales returns representing debit memoranda issued by Pittsburgh Plate Glass Co. which were not recorded on the books of Duplate Corp'n nor included in the account filed:		
Oct 1928: Debit memo to Ainsworth Mfg.Co.		$4 661.22
Jun 1929: Debit memo to Amesbury Brass & Fdy Co.		118.42
Nov 1929: Debit memo to Amesbury Brass & Fdy Co.		169.28
Various credit memoranda issued by Pittsburgh Plate Glass Co. included by Duplate Corp'n as "sales returns" and included on the monthly income accounts as "allowances and adjustments"		5 288.06
Total		10 236.98
Adjustments increasing the returned sales as shown in the account filed by Duplate Corp'n:		
Specialty returned sales for the five months ended May 31, 1930, included in the monthly income accounts but not included in the account filed by Duplate Corporation	1 942-8	2 361.85
Difference as above	1 942-8†	$7 875.11

†In red on Original Exhibit

The interest on investment for the year 1928 stated as $60,000 in the account filed by Duplate Corporation was calculated at a rate of six per cent on a paid-in capital of $1,000,000 for the year. According to the company's accounting records, the entire $1,000,000 of capital stock was not paid in until October 1928. We have recalculated the 1928 allowance for interest on investment and have included a monthly charge at the rate of six per cent per annum based on the total capital stock paid in at the end of the month. Interest on investment for the year 1928, as adjusted, amounts to $25,000 or $35,000 less than shown in the account filed by Duplate Corporation, detailed as follows:

Capital stock outstanding:	Capital stock outstanding	Adjusted interest on investment	Interest on investment per account filed	Adjustment
1928 Feb 28	$50 000.00	$250.00	$10 000.00	$9 750.00
Mar 31	50 000.00	250.00	5 000.00	4 750.00
Apr 30	100 000.00	500.00	5 000.00	4 500.00
May 31	100 000.00	500.00	5 000.00	4 500.00
Jun 30	200 000.00	1 000.00	5 000.00	4 000.00
Jul 31	300 000.00	1 500.00	5 000.00	3 500.00
Aug 31	500 000.00	2 500.00	5 000.00	2 500.00
Sep 30	700 000.00	3 500.00	5 000.00	1 500.00
Oct 31	1 000 000.00	5 000.00	5 000.00	-
Nov 30	1 000 000.00	5 000.00	5 000.00	-
Dec 31	1 000 000.00	5 000.00	5 000.00	-
Totals		$25 000.00	$60 000.00	$35 000.00

The following paragraphs explain the various statements and schedules which we prepared for each month:

Schedule of gross sales allowances and adjustments and net sales: During the period under review, the Pittsburgh Plate Glass Company sold the entire product of the Duplate Corporation prepared and issued all sales invoices covering shipments to customers,

issued all credit and debit memoranda and handled all credits and collections.

The warehouses of Pittsburgh Plate Glass Company were treated as jobbers and were billed at the same prices as jobbers. The books of the Duplate Corporation contain entries of credits to Pittsburgh Plate Glass Company at varying percentages which are stated on the Duplate Corporation's books to be commissions on sales, and also entries of credits to Pittsburgh Plate Glass Company for a portion of certain of Pittsburgh Plate Glass Company's general office salaries and expenses.

Each month, a recapitulation was prepared from Pittsburgh Plate Glass Company sales invoices covering all shipments of Duplate products, and the total quantities shipped classified as to quality and unit sales price. From this monthly recapitulation, one invoice was prepared by Duplate Corporation charging the Pittsburgh Plate Glass Company for the total monthly shipments, net of any cash discounts and commissions due the Pittsburgh Plate Glass Company.

We obtained the information necessary to prepare the schedules of gross sales, classified as to quantities, qualities and unit sales prices of shipments to various customers, from an analysis of copies of Pittsburgh Plate Glass Company sales invoices covering shipments of Duplate Corporation products.

The detail of the items included in the column captioned "allowances and adjustments" was prepared from the Duplate Corporation schedules of Pittsburgh Plate Glass Company credit memoranda, and verified by examination of the credit memoranda, giving effect, however to a few credits made by Pittsburgh Plate Glass Company to its customers not taken up by the Duplate Corporation. Where possible, we have applied the allowances and adjustments to the same month as the original billing.

Numerous minor differences exist between the figures in the column captioned "gross sales-Duplate Corporation to Pittsburgh Plate Glass Company" and those in the column captioned "gross sales-Pittsburgh Plate Glass Company to its customers". These are due to errors in classification on the Duplate Corporation's monthly sales recapitulation, discrepancies in billing for samples, etc. Likewise, for the same reasons there are small differences between the net sales as shown by the monthly income accounts and the total net sales as listed on the schedule. Below is a tabulation showing the differences each month:

	Sales net of allowances and adjustments but before returns			Differences as compared with income account	
		Per schedule of gross sales			
1928:	Per income account	Duplate billing	PPGCo. billing	Duplate billing Over-Short†	PPGCo. billing Over-Short†
Jan & Feb	$1 313.75	$1 341.04	$1 491.27	$27.29	$177.52
Mar	3 726.24	3 726.05	3 752.37	.19†	26.13
Apr	4 586.83	4 570.57	4 692.41	16.26†	105.58
May	9 122.25	9 099.80	9 103.54	22.45†	18.71†
Jun	9 805.50	9 718.04	9 982.28	87.46†	176.78
Jul	231 053.66	231 041.79	231 873.31	11.87†	819.65
Aug	418 363.47	418 363.59	419 404.29	.12	1 040.82
Sep	405 593.94	405 902.74	406 657.92	308.80	1 063.98
Oct	499 457.21	498 811.59	494 486.35	645.62†	4 970.86†
Nov	353 970.22	353 380.86	355 979.00	589.36†	2 008.78
Dec	150 795.48	151 242.83	151 086.10	447.35	290.62
	$2 087 788.55	$2 087 198.90	$2 088 508.84	$589.65†	$720.29
1929:					
Jan	571 436.75	571 477.22	571 995.48	40.47	558.73
Feb	426 294.51	426 369.40	425 196.56	74.89	1 097.95†
Mar	538 701.80	538 619.04	538 304.73	82.76†	397.07†
Apr	355 883.35	356 082.31	355 503.47	198.96	379.88†
May	269 897.09	269 904.21	269 534.18	7.12	362.91†
Jun	231 457.73	231 489.14	231 204.01	31.41	253.72†
Jul	296 751.17	296 750.60	296 649.31	.57†	101.86†
Aug	441 307.14	441 310.06	441 409.81	2.92	102.67
Sep	419 528.06	419 554.29	421 085.50	26.23	1 557.44
Oct	384 060.56	384 087.62	384 122.90	27.06	62.34
Nov	270 747.90	270 990.42	270 772.41	242.52	24.51
Dec	152 104.53	151 890.57	152 332.18	213.96†	227.65
	$4 358 170.59	$4 358 524.88	$4 358 110.54	$354.29	$60.35†

†In Red on Original Exhibit.

1930:	Sales net of allowances and adjustments but before returns			Differences as compared with income account	
		Per schedule of gross sales			
	Per income account	Duplate billing	PPGCo. billing	Duplate billing Over-Short†	PPGCo. billing Over-Short†
Jan	$340 287.06	$340 172.28	$340 016.58	$114.78†	$270.48†
Feb	247 326.39	246 973.18	247 156.64	353.21†	169.75†
Mar	235 976.72	236 654.83	236 361.52	678.11	384.80
Apr	177 198.15	177 425.92	178 339.99	227.77	1 141.84
May	205 039.83	205 132.18	205 080.49	92.35	40.66
	$1 205 828.15	$1 206 358.39	$1 206 955.22	$530.24	$1 127.07
Summary:					
1928	$2 087 788.55	$2 087 198.90	$2 088 508.84	4589.65†	$720.29
1929	4 358 170.59	4 358 524.88	4 358 110.54	354.29	60.05†
5 mos. 1930	1 205 828.15	1 206 358.39	1 206 955.22	530.24	1 127.07
Total	$7 651 787.29	$7 652 082.17	$7 653 574.60	$294.88	$1 787.11

The foregoing tabulation indicates that the gross sales before returns, as detailed on the monthly "schedules of gross sales, allowances and adjustments and net sales", in the aggregate varies but little from the aggregate gross sales as shown on the monthly income accounts.

In accordance with your instructions, we have calculated and shown on the detailed schedules the profit or loss on each sale.

Following the instructions of counsel for your company, the amount of the profit or loss on each sale as shown in the schedul represents the difference between:

(a) Gross billing to customer by Pittsburgh Plate Glass Company, less allowances and adjustments.

(b) Cost of shipment arrived at by multiplication of quantity shipped by average cost per foot for shipments during that month. In calculating this average cost per foot of sold product, certain

†In Red on Original Exhibit.

costs of unaccounted for and/or unsold product and certain items of general overhead expense have been eliminated which are explained in more detail hereinafter.

The average costs of shipments of Duplate arrived at as described above, are shown on the income account for each month and for your information are listed below:

	Average cost per foot of Duplate shipped:		
	1928	1929	1930
January)		$1.409	$1.318
February)	$5.04	1.581	1.356
March	2.875	1.615	1.312
April	3.168	1.643	1.379
May	3.166	1.653	1.324
June	1.879	1.505	-
July	1.325	1.47	-
August	1.294	1.382	-
September	1.346	1.364	-
October	1.389	1.332	-
November	1.371	1.432	-
December	1.378	1.63	-

The cost of goods sold based on the above averages per foot for each month, amounts in total to $5,902,357.22, as compared with a total of $5,903,924.48 on the income accounts (excluding contested items of expense). This comparatively negligible difference is caused by samples and other minor differences in the footage.

The profits on individual profit-making sales, as detailed on the monthly schedules, total $1,825,337.63. The losses as detailed on the monthly schedules, total $74,120.25, of which $29,182.20 represents miscellaneous credits to customers which could not be identified as applying to specific profit-making or loss-incurring sales, so that the losses on individual loss-incurring sales total $44,938.05.

Below is a reconciliation of the total of the profits, net of losses, with the aggregate loss for the period, per the monthly income accounts as detailed on page 2:

Total profits on individual profit-making sales		$1 825 337.63
Less, miscellaneous credits to customers which were not identified with profit-making or loss-incurring sales		29 182.20
		1 796 155.43
Less, losses on individual loss-incurring sales		44 938.05
Total profits on individual sales, net of losses and miscellaneous credits, as detailed on the monthly schedules		1 751 217.38
Deduct:		
Costs of unaccounted for and/or unsold product and certain expenses excluded in computing costs of individual shipments, in accordance with instructions of counsel	$1 912 487.41	
Returned sales	812 770.93	
Differences in sales	1 787.31	
Differences in costs	1 567.26	
		2 728 613.91
Loss† per income accounts as detailed on page 2.		977 395.53†

A reconciliation of the profit or loss for each month, before deducting returned sales, follows:

† In Red on Original Exhibit.

	Profits or losses† on gross sales per income account				
1928:	Before elimination of contested items of cost and expense:	Total of contested items of cost and expense eliminated:	After elimination of contested items of cost and expense:	Profits net of losses† as shown on schedule of sales:	Sales schedule over short†
Jan)					
Feb)	$5 752.25†	$4 417.54	$1 334.71†	$1 212.16†	$122.55
Mar	4 945.72†	4 326.32	619.40†	566.63†	52.77
Apr	4 217.06†	2 855.31	1 361.75†	1 233.65†	128.10
May	6 698.73†	3 303.42	3 395.31†	3 349.41†	45.90
Jun	3 151.17	1 717.65†	1 433.52	1 743.63	310.11
Jul	48 131.71†	120 477.49	72 345.78	73 138.79	793.01
Aug	50 321.89†	187 530.33	137 208.44	138 308.59	1 100.15
Sep	96 905.42†	216 375.16	119 469.74	120 639.06	1 169.32
Oct	27 767.32†	167 394.93	139 627.61	134 842.45	4 785.16†
Nov	49 071.97†	150 869.95	101 797.98	103 788.79	1 990.81
Dec	27 187.66†	70 573.24	43 384.58	43 730.42	345.84
	$317 848.56†	$926 405.04	$608 556.48	$609 829.88	$1 273.40
1929:					
Jan	33 740.10†	194 721.86	160 981.76	161 680.42	698.66
Feb	76 178.65†	161 684.46	85 505.81	84 565.00	940.81†
Mar	26 162.33†	124 673.52	98 511.19	98 503.53	7.66†
Apr	23 494.50	38 238.66	61 733.16	61 802.77	69.61
May	5 670.07	35 387.38	41 057.45	40 933.83	123.62†
Jun	30 232.94	23 853.76	54 086.70	54 059.04	27.66†
Jul	38 908.49	26 793.66	65 702.15	65 750.35	48.20
Aug	44 838.26	62 260.25	107 098.51	107 226.23	127.72
Sep	64 374.81	38 646.11	103 020.92	104 402.52	1 381.60
Oct	54 707.34	42 102.87	96 810.21	96 905.78	95.57
Nov	13 145.13	33 536.94	46 682.07	46 754.81	72.74
Dec	20 737.33†	31 471.80	10 734.47	11 440.91	706.44
	$118 553.13	$813 371.27	$931 924.40	$934 025.19	$2 100.79
1930:					
Jan	32 159.57	47 352.21	79 511.78	79 318.82	192.96†
Feb	10 680.23	33 760.90	44 381.13	44 110.72	270.41†
Mar	899.81	39 011.71	39 910.72	40 451.36	540.64
Apr	13 538.65†	26 873.93	13 335.28	13 625.71	290.43
May	4 530.87	25 712.35	30 243.02	29 855.70	387.32†
	$34 670.83	$172 711.10	$207 381.93	$207 362.31	$19.62†
Total	$164 624.60†	$1 912 487.41	$1 747 862.81	$1 751 217.38	$3 354.57

†In Red on Original Exhibit.

As far as was possible from the records available, we have supplied the names of the car manufacturer. In order to procure the information, we scrutinized the copies of sales invoices, credit memoranda and lists of car manufacturers' and body builders' pattern numbers furnished us by the Pittsburgh Plate Glass Company. Where we were unable to secure definite information, we have omitted the name of the car manufacturer.

Returned sales: The information contained in the schedules of returned sales was procured from the Duplate Corporation's list of Pittsburgh Plate Glass Company's credit memoranda. The substantial correctness of these lists was then verified by an examination of copies of the Pittsburgh Plate Glass Company's credit memoranda issued to its customers.

In preparing these schedules of returned sales, we have not attempted to allocate the returns to the months during which the shipments were billed to the customers; but, as per the books, in the month during which the returns were received. We have, however, applied all sizeable debit memoranda issued by the Pittsburgh Plate Glass Company to adjust credit memoranda previously issued, to the month in which the credit memoranda were issued.

We have calculated the cost of returned sales at the average cost per foot for the month in which the returns were received, as is shown on each monthly income account.

Following is a summary by months of the profit on profit-[illegible] sales after deducting credits which were not allocated to [illegible]cular sales and eliminating profit on returned sales:

	(A) Total profit on profit-making sales as shown on monthly schedules of sales	(B) Credits which were not allocated to particular sales included on monthly schedules of sales under column captioned "losses"	(C) Total credits to customers for returned sales, net of cost of returned sales, as shown on monthly income accounts	(D) Net profit on profit-making sales column A net of columns B and C
1928:				
Jan & Feb	-	-	-	-
Mar	$39.66	-	-	$39.66
Apr	84.21	-	-	84.21
May	61.93	-	-	61.93
Jun	1 744.11	-	-	1 744.11
Jul	73 138.79	-	-	73 138.79
Aug	138 675.35	$366.73	$54.83	138 253.79
Sep	121 167.76	528.70	4 919.77	115 719.29
Oct	135 756.80	914.35	30 040.19	104 802.26
Nov	104 600.02	651.21	7 979.93	95 968.88
Dec	47 699.30	3 968.88	15 292.80	28 437.62
	$622 967.93	$6 429.87	$ 58 287.52	$558 250.54
1929:				
Jan	165 829.60	4 126.23	12 445.65	149 256.72
Feb	85 050.12	420.43	9 712.69	74 917.00
Mar	99 282.55	519.07	10 222.49	88 540.99
Apr	63 152.66	717.84	11 272.00	51 162.82
May	48 236.23	6 513.32	12 520.76	29 202.15
Jun	56 977.53	1 229.29	7 321.76	48 426.48
Jul	70 242.12	728.74	12 665.58	56 847.80
Aug	110 169.03	1 171.14	5 542.55	103 455.34
Sep	106 028.40	160.27	4 611.45	101 256.65
Oct	101 483.84	1 741.16	10 273.60	89 469.08
Nov	50 541.78	974.48	7 950.35	41 616.95
Dec	15 238.65	850.18	5 141.27	9 247.20
	$972 231.51	$19 152.15	$109 680.18	$843 399.18
1930:				
Jan	83 662.85	663.83	2 870.36	80 128.66
Feb	49 911.79	510.28	6 001.40	43 400.11
Mar	42 863.75	344.80	1 678.91	40 840.04
Apr	20 414.93	852.11	2 175.54	17 387.28
May	33 284.87	1 229.16	796.19	31 259.52
	$230 138.19	$3 600.18	$13 522.40	[illegible] 3 015.61
Total	$1 825 337.63	32.20	$181 490.10	$1 [illegible] 4 665.43

Income accounts: As stated before, we have, wherever possible, applied sales allowances and adjustments to the same months in which the original sales were billed. Various items of expense, which were charged to single month's operations in the Duplate Corporation's accounting records, have been apportioned equitably over periods of several months and we have given effect to this apportionment in the monthly income accounts, as adjusted.

Various expenses, such as experimental expense, Triplex case expense, patent expense, commissions paid to Pittsburgh Plate Glass Company, and extraordinary expenses have, at the request of your legal counsel, been eliminated and therefore not distributed over the several classes of product as representing part of the cost of sales thereof.

The costs of gross sales of "Duplate" as shown on the monthly income accounts, before the elimination of contested items, are in agreement with the monthly costs of sales as shown by the Duplate Corporation's accounting records.

We were informed that the costs of bullet-proof, sheet and other specialty products were ascertained by the company in some instances by arbitrary apportionment. Because of the relatively small quantities involved, the costs of these specialties have been included in the statements we prepared at the amounts shown by the Duplate Corporation's records.

In the monthly income accounts for the five months of 1930, we have shown no classification of specialty sales and costs of sales, other than "sheet", because of the small quantities involved and also because we were informed that practically all specialties were manufactured during that period under a new process.

Cost of Duplate sales: The items of material, labor and ...se as shown on the "monthly costs of Duplate sales" are in agree... ...with the Duplate Corporation's accounting records.

The monthly adjustments to the company's cost of Duplate sales, ...senting items of costs of unaccounted for and/or unsold product, ...ted by your legal counsel, are completely explained in the "Detail ...ntested Items Eliminated from Cost of Duplate Sales".

Detail of contested items, eliminated from cost of Duplate Sales: ...items included in these schedules are a result of eliminating from ...Duplate inventory accounts, losses at each stage of manufacture during ...month at a rate per foot conforming to the average cost of manufac... ...per foot as shown by that particular process during the month. ...consistent, we have valued reclaimed or salvaged glass at the same ...ge cost of manufacture per foot as was used for the transfer of ...lar glass from the preceding stage of manufacture during the month.

From the information contained in the company's monthly ...tracts of Stock and Departmental Accounts", we have completely re... ...ulated the Duplate stock, work-in-process, and finished goods in... ...tories, and the details of changes made by reason of such recalcula... ...are shown on our statements captioned "Detail of Contested Items ...inated from Cost of Duplate Sales".

Detail of various expenses, such as experimental expenses, ...lm case expenses, miscellaneous patent expenses, etc.: These month... ...chedules were prepared from copies of the Duplate Corporation's ...hly reports and the totals as shown on these schedules are in agree... ...with the items of expense as stated on the monthly income accounts.

Inventories: Following is a summary of the inventories of the Duplate Corporation at May 31, 1930, as shown by its records and as adjusted. We made no verification of the inventories. The adjustment results solely from the changes in the unit values due to the elimination of certain costs of unaccounted for and/or unsold product:

	Number feet	Per books	As adjusted
Material and supplies:			
Plate glass stock:			
7/64 inch	18 562	$6 552.39	$6 552.44
Other thicknesses	2 271	2 369.29	2 369.29
Window glass stock (sheet)	74 162	6 846.83	6 846.83
Picture glass stock	4 400	677.68	677.68
Photo glass stock	21 086	3 778.90	3 778.90
Pyralin (lbs)	82 227	82 605.65	82 605.65
Hot wire cutting department		2 366.83	2 366.83
Sand blast, trade-marking dept.		265.20	265.20
Scrap account		1 613.67	1 613.67
Storeroom stock		20 295.01	20 295.01
Total material and supplies		$127 371.45	$127 371.51
Glass in process:			
Pressing department	31 662	34 422.07	33 005.97
Cutting department	595	226.80	220.11
Miscellaneous		140.00	140.00
Total glass in process		$34 788.87	$33 365.70
Finished stock:			
Duplate	9 277	11 585.67	10 666.91
Bent Duplate	-	1 546.45	1 546.45
Decorative Duplate	105	343.47	343.47
Window glass (sheet)	3 621	2 492.70	2 492.70
Decorative window glass (sheet)	48	57.00	57.00
Goggle stock	1 895	492.15	492.15
Combination	1 721	1 316.39	1 316.39
Aerolite (photo and picture)	28	31.15	31.15
Samples (finished stock)	-	2 196.46	2 196.46
Counter tops	-	17.65	17.65
Total finished stock		$20 079.09	$19 160.31
Total inventories		$182 239.41	$179 897.52

We wish to take this opportunity of expressing our appreciation of the courtesies and assistance given our representatives by the officers and employees of the Duplate Corporation, the Pittsburgh Plate Glass Company, and the Triplex Safety Glass Company of North America.

Very truly yours,

Lyford Ross Bros & Montgomery

Copy No. 1

Year		Plate Glass Stock Losses		Plate Glass Cutting Dept. Losses		Assembling Dept. Losses
1928	January & February	-		-		-
	March	-		-		10-2-10
	April	-		-		136
	May	30	(1)†	-		172-11
	June	468	(1)†	-		526-3
	July	984	(1)†	-		2 785
	August	-		-		8 197
	September	92 038	(2)†	-		486-9
	October	14 567	(4)†	23 801		670-4
	November	12 744	(4)†	12 268		1 145-9
	December	118 222)	(4)†			
		5 136)	(3)†	5 926		
	Total	244 189		41 995		14 130-3
1929	January	61 341	(5)†	957	(4)†	-
	February	46 145	(5)†	317		-
	March	31 125	(5)†	31 780	(8)†	-
	April	18 150	(5)†	10 175		-
	May	5 861	(6)†	8 516		-
	June	1 928	(6)†	5 831		-
	July	-		15 319		3 547
	August	13 252	(6)†	14 053		
	September	482	(7)†	12 163		1 431
	October	450	(7)†	15 537		1 364
	November	310	(7)†	8 744		757
	December	357	(7)†	6 714		1 270
	Total	179 401		130 106		8 369
1930	January	1 034		27 970		994
	February	350		15 827		738
	March	175		15 741		-
	April	34		10 293		-
	May	35		6 074		-
	Total	1 628		75 905		1 732
	Grand Total	425 218		248 006		24 231-3

† Figures in Parenthesis in red in Original Exhibit.

Year		Assembling and Pressing Dept. Losses	Pressing Dept. Losses
1928	Jan. & Feb.	-	187
	March	-	220-4
	April	-	347-6
	May	-	2 377-2
	June	-	9 363-2
	July	-	53 681-3
	August	-	94 049-11
	September	-	113 904-7
	October	-	99 529-11
	November	-	51 124-4
	December	-	32 572
	Total	-	457 357-2
1929	January	-	90 752
	February	-	92 370
	March	-	35 526
	April	-	4 086
	May	-	2 999
	June	-	6 956
	July	-	2 619
	August	-	9 559
	September	-	4 827
	October	-	6 427
	November	-	3 917
	December	-	2 820
	Total	-	262 858
1930	January	-	6 069
	February	-	4 501
	March	6 074	-
	April	3 357	-
	May	3 637	-
	Total	13 068	10 570
	Grand Total	13 068	730 785-2

On company statements these items are

(1)†Breakage
(2)†Order cutting and stock loss
(3)†Operating stock loss
(4)†Stock loss
(5)
(6)
(7)
(8)

PLAINTIFF'S EXHIBIT NO. 10.

DUPLATE CORPORATION

RECAPITULATION or CONTESTED ITEMS ELIMINATED from COST of DUPLATE SALES (quantity stated in feet and inches)

	Assembling and Pressing Dept. Losses	Pressing Dept. Losses	Carbital Dept. Losses	Pyralin Examination Dept. Losses	Edging Dept. Losses	Duplate Stock Losses	Salvaged or reclaimed stock retaken into possession	Total Area
Feb.	-	187	-	-	-	-	-	187
	-	220-4	-	-	53-10	-	-	284-5
	-	347-6	-	-	168-1	-	113-1	764-8
	-	2 377-2	-	-	614-8	-	365-7	3 560-4
	-	9 363-2	-	-	1 792-2	-	292-1	12 441-8
	-	53 681-3	-	-	20 394-10	21 527-9	353-8	99 726-6
	-	94 049-11	-	-	38 987-3	-	690-3	141 924-5
ber	-	113 904-7	-	-	24 828-5	-	5 860-8	237 118-5
r	-	99 529-11	-	-	26 136-8	-	9 095-7	173 800-6
er	-	51 124-4	-	-	9 177-6	742-9	5 973-8	93 176
er	-	32 572	-	-	4 663	133	8 405	175 057
Total	-	457 357-2	-	-	126 816-5	22 403-6	31 149-7	938 040-11
y	-	90 752	-	-	9 909 (5)†	3 326) (9)†	-	-
						1 149) (10)†	11 764	179 198
ry	-	92 370	-	-	15 535	641-6 (10)†	16 211	171 219-6
	-	35 526	-	-	19 018	-	32 857	150 306
	-	4 086	-	-	5 510	352 (10)†	18 027	56 300
	-	2 999	-	20 878 (13)†	3 634	-	19 637	61 525
	-	6 956	-	7 429 (13)†	6 706	1 343 (10)†	17 875	48 068
	-	2 619	-	22 808 (13)†	3 693	2 000 (10)†	13 022	63 008
	-	9 559	-	44 260 (16)†	7 205	17 177 (10)†	17 091	122 597
ber	-	4 827	1 131	53 986 (14)†	1 740	405 (10)†	19 508	95 673
r	-	6 427	520	7 292 (14)†	3 812	576 (10)†	15 312	51 290
er	-	3 917	259	4 056 (14)†	1 049	3 450 (10)†	6 198	28 740
er	-	2 820	-	3 095 (15)†	660	1 585) (11)†	-	-
						7 857) (12)†	5 587	29 945
Total	-	262 858	1 910	163 804	78 471	39 861-6	193 089	1 057 869-6
r	-	6 069		14 140	2 163	286	13 610	66 266
y	-	4 501		7 042	2 107	4	4 598	35 167
	6 074	-		9 005	2 243	57	3 945	37 240
	3 357	-		5 061	1 538	48	4 198	24 529
	3 637	-		3 990	851	683	5 300	20 570
Total	13 068	10 570	-	39 238	8 902	1 078	31 651	183 772
l Total	13 068	730 785-2	1 910	203 042	214 189-5	63 343	255 889-7	2 179 682-5

ny statements these items are variously named as follows:

age
r cutting and stock loss
ting stock loss
k loss

(5)†Plate glass shrinkage
(6)†Cutting dept. shrinkage
(7)†Loss in stock
(8)†Stock and cutting loss
(9)†Rejections unedged stock
(10)†Rejections edged stock
(11)†Stock loss edged
(12)†Loss in stock edged
(13)†Cutting
(14)†Loss examining
(15)†Loss examining and scrap sales
(16)†Shrinkage

DUPLATE CORPORATION

RECAPITULATION of CONTESTED ITEMS ELIMINATED from COST of DUPLATE SALES (stated in dollars)

RECAPIT

		Plate glass stock losses	Plate glass cutting department losses	Assembling department losses	Assembling & pressing department losses	Pressing department losses	Cerbital department losses	Pyralin examination department losses	Edging department losses
1928	January & February	-	-	-	-	$384.45	-	-	-
	March	-	-	$11.89	-	389.63	-	-	$113.28
	April	-	-	176.44	-	623.94	-	-	347.51
	May	$10.58 (1)†	-	252.41	-	4 584.83	-	-	1 514.98
	June	155.10 (1)†	-	534.56	-	11 130.92	-	-	2 559.92
	July	369.36 (1)†	-	2 925.36	-	60 530.44	-	-	25 271.85
	August	-	-	8 767.51	-	107 421.09	-	-	48 279.47
	September	39 527.38 (2)†	-	538.68	-	135 036.18	-	-	29 311.44
	October	6 483.48 (4)†	$10 593.35	793.07	-	121 873.39	-	-	31 913.14
	November	5 697.29 (4)†	5 494.96	1 288.74	-	59 763.32	-	-	10 777.05
	December	2 178.69) (3)†							
		50 149.77) (4)†	2 513.81	-	-	35 654.55	-	-	5 132.42
	Total	$104 571.65	$18 602.12	$15 288.66	-	$537 392.74	-	-	$155 221.06
1929	January	25 672.44 (5)†	400.52 (4)†	-	-	114 627.94	-	-	12 426.23 (5
	February	19 613.93 (5)†	134.74	-	-	128 078.12	-	-	21 374.14
	March	13 246.18 (5)†	13 524.93 (8)†	-	-	51 418.84	-	-	27 400.94
	April	7 508.26 (5)†	4 209.18	-	-	5 490.60	-	-	7 472.94
	May	2 474.14 (6)†	3 674.44	-	-	4 078.34	-	$4 999.45 (13)†	4 939.19
	June	807.82 (6)†	2 507.50	-	-	9 166.06	-	1 826.00 (13)†	8 880.21
	July	-	6 145.39	3 807.91	-	3 143.01	-	4 627.51 (13)†	4 425.14
	August	5 185.77 (6)†	5 630.89	-	-	10 937.36	-	9 264.62 (16)†	8 256.21
	September	188.08 (7)†	4 892.05	1 517.59	-	5 639.82	$1 357.95	10 555.50 (14)†	2 196.25
	October	165.43 (7)†	5 874.85	1 373.38	-	7 086.69	591.92	7 432.93 (14)†	4 517.84
	November	112.84 (7)†	3 318.41	793.81	-	4 586.06	303.24	4 228.63 (14)†	1 339.53
	December	135.09 (7)†	2 668.05	1 439.47	-	3 590.83	-	3 315.46 (15)†	952.81
	Total	$75 109.98	$52 980.95	$8 932.16	-	$347 843.67	$2 253.11	$46 250.10	$104 181.43
1930	January	354.36	9 859.70	957.25	-	6 611.82	-	15 011.26	2 542.26
	February	121.95	5 663.85	711.08	-	4 893.41	-	7 121.42	2 505.96
	March	61.06	5 641.51	-	$6 423.26	-	-	9 359.62	2 609.53
	April	11.92	3 772.69	-	3 601.52	-	-	5 326.70	1 818.34
	May	12.36	2 247.11	-	3 791.34	-	-	4 320.37	972.65
	Total	$561.65	$27 184.86	$1 668.33	$13 816.12	$11 505.23	-	$41 139.37	$10 448.74
	Grand Total	$180 243.28	$98 767.93	$25 889.15	$13 816.12	$896 741.64	$2 253.11	$87 389.47	$269 851.23

On company's statements, these items are variously classified as follows:

(1)† Breakage
(2)† Order cutting and stock loss
(3)† Operating stock loss
(4)† Stock loss

(15)† Plate glass shrinkage
(6)† Cutting department shrinkage

(7)† Loss in st
(8)† Stock and
(9)† Rejectio

† Figures in Parenthesis in Red in Original Exhibit.

ars)

DUPLATE CORPORATION

RECAPITULATION of CONTESTED ITEMS ELIMINATED from COST of DUPLATE SALES (stated in dollars)

Carbital department losses	Pyralin examination department losses	Edging department losses	Edgework operations losses	Finished Duplate stock losses	Salvaged or reclaimed stock; value per company included in costs	Adjustment resulting from revaluation of opening and closing inventories based on adjusted costs	Company's estimated cost of rejects charged to process costs and later deducted (see contra)	Total Deductions
-	-	-	-	-	-	-	-	$384.45
-	-	$113.28	-	-	-	-	-	514.80
-	-	347.51	-	-	-	$169.72	-	1 317.61
-	-	1 514.98	-	-	-	-	-	6 362.80
-	-	2 559.92	-	-	-	-	-	14 380.50
-	-	25 271.85	-	$27 394.28	-	-	-	116 491.29
-	-	48 279.47	-	-	-	311.38	-	164 779.45
-	-	29 311.44	$263.50	-	$9 221.17	-	-	213 898.35
-	-	31 913.14	147.77	-	15 846.33	-	-	187 650.53
-	-	10 777.05	115.48	879.65	10 766.92	44 038.53	-	138 821.94
-	-	5 132.42	106.51	149.22	13 567.35	-	-	109 452.32
-	-	$155 221.06	$633.26	$28 423.15	$49 401.77	$44 519.63	-	$954 054.04
-	-	12 426.23 (5)†	4.86	4 232.93) (9)† 1 401.83) (10)†	8 053.06	22 234.12	-	189 053.93
-	-	21 374.14	44.79	867.42 (10)†	8 749.64	-	-	178 862.78
-	-	27 400.94	42.16	-	13 329.94	31 956.71	-	150 919.70
-	-	7 472.94	10.66	481.86 (10)†	8 252.34	11 183.79	$60 334.61	104 944.24
-	$4 999.45 (13)†	4 939.19	4.35	3 217.99 (10)†	6 032.38	24 630.03	-	54 050.31
-	1 826.00 (13)†	8 880.21	-	97.97) (10)† 1 789.08) (10)†	5 235.96	5 280.65	-	35 591.25
-	4 627.51 (13)†	4 425.14	-	150.61) (10)† 2 385.37) (10)†	6 671.70	-	-	31 356.64
-	9 264.62 (16)†	8 256.21	-	1 341.40† (10)† 19 768.79) (10)†	10 507.46	-	-	70 892.50
357.95	10 555.50 (14)†	2 196.25	-	501.53 (10)†	15 526.02	2 389.01	-	44 763.80
591.92	7 432.93 (14)†	4 517.84	-	688.78 (10)†	10 923.35	-	-	38 655.17
303.24	4 228.63 (14)†	1 339.53	-	4 307.05 (10)†	7 930.22	1 134.49	-	28 054.28
-	3 315.46 (15)†	952.81	-	2 155.84) (11)† 10 686.70) (12)†	2 914.95	1 308.11	-	29 167.31
253.11	$46 [illegible].10	$104 181.43	$106.82	$54 075.15	$104 127.02	$100 116.91	$60 334.61	$956 311.91
-	15 011.26	2 542.26	-	340.16	3 134.42	-	-	38 811.23
-	7 121.42	2 505.96	-	4.76	2 124.95	61.56	-	23 208.94
-	9 359.62	2 609.53	-	66.59	1 909.41	-	-	26 070.98
-	5 326.70	1 818.34	-	56.54	1 186.73	1 052.38	-	16 826.82
-	4 320.37	972.65	-	785.33	351.53	5 685.17	-	18 165.86
-	$41 339.37	$10 448.74	-	$1 253.38	$8 707.04	$6 799.11	-	$123 083.83
253.11	$87 389.47	$269 851.23	$740.08	$83 751.68	$162 235.83	$151 435.65	$60 334.61	$2 033 449.78

[illegible]hrinkage
[illegible]rtment shrinkage

(7)† Loss in stock
(8)† Stock and cutting loss
(9)† Rejections unedged stock
(10)† Rejections edged stock
(11)† Stock loss edged
(12)† Loss in stock edged
(13)† Cutting
(14)† Loss examining
(15)† Loss examining and scrap sales
(16) Shrinkage

PLAINTIFF'S EXHIBIT NO. 11.

STUTZ MOTOR CAR COMPANY
of AMERICA, *Inc.*

INDIANAPOLIS, IND., U.S.A.

CABLE ADDRESS, "STUTZ"

DIRECTORS
Eugene V. R. Thayer
Charles M. Schwab
Hicks A. Weatherbee
Willard A. Mitchell
Charles Reed
Frederick E. Moskovics
Edgar S. Gorrell

Saturday
December
Eight
1928

12-10-1928.

Col. E. S. Gorrell.
Letter December eighth
receiving careful attention
Will ~~write~~ advise you fully but can
assure you ~~[illegible]~~ no rebates
Confidential being paid anyone Stop
accept with pleasure invitation
for nineteenth

Mr. Neilson Edwards
Chase Securities Corporation
Chase National Bank Building
60 Cedar Street
New York City, N. Y.

My dear Edwards:

I am enclosing you a copy of Calhoun's letter of November 13th. I am writing to you because I believe something is wrong. Naturally, we want to use Triplex glass if we can because we would like to do business if it is possible to do so. On the other hand I am going to tell you in confidence your prices are out of line with competition.

7 over 1000 similar
46 sizes 14,000 prices.

1.14	1.71 sealed
1.84	1.28 unsealed
1.15	1.45 un.
1.85	1.55 sealed

500 prices at time

Samples Cadillac

This letter that Calhoun gives me makes the prices entirely too high and I am writing to you with the request that the matter be gotten into and straightened out. Confidentially, without using what buying ability we have we are already in a position to buy the same safety glass that Cadillac and LaSalle use, of the highest plate glass standard for $2.10 per square foot net or less and the Utility Quality that they put out to other manufacturers as the laminated sheet we can buy for $1.35. Mind you, we have not yet started in with these people to see, really, where their bottom price is. The attached copy of the figures contained in Calhoun's letter makes it highly non competitive from the point of view of this glass.

Unsealed.
30% Celluloid up.

Furthermore, we can get a guarantee from them that is better than the guarantee that you gentlemen tell me you are going to give me. Namely, we can get a guarantee to protect us from discoloration in the class.

THE
SPLENDID
STUTZ

Cy. 11

The above are all facts. How much lower we could go I have not yet attempted to find out but certainly we cannot afford to pay Triplex $3.14 per square foot for the plate glass quality when we can buy the same thing that Cadillac and LaSalle are using for a maximum of $2.10 and probably less and we cannot afford to pay Triplex $1.71 for Utility Quality when we can buy the same thing elsewhere for a maximum of $1.35 or less.

Naturally, we are very much disappointed in the prices contained in the attached copy of Calhoun's letter. Something is wrong. Triplex must be competitive in price. May I hear from you definitely and specifically as to exactly what price we are going to be asked to pay because naturally we cannot continue to pay the above prices and we want to know just exactly what we are going to be charged.

As a matter of gossip one of our vendors from whom we buy an article with glass therein tells us that he is installing Triplex glass for the Pierce Arrow factory in a similar article. He says that originally the Triplex price was $2.00 a foot and that later the price was raised to $2.50 a foot; his belief being that the 50¢ differential is being rebated to Pierce Arrow factory by Triplex. What I would like to know is Pierce Arrow getting a rebate? Also if you will notice the prices this man tells us that they are paying, they are less than the price quoted to us. Will you kindly get into this for us?

Your kindness in giving this your attention will be very much appreciated indeed. Thanks a thousand times.

Yours very truly,

E. S. Correll
Vice President

ESC RLM

1210

COPY

TRIPLEX SAFETY GLASS CO.

Ex. 11

Clifton, N.J.
Nov. 13, 1928

Stutz Motor Car Co. of America, Inc.
Indianapolis, Indiana

ATTENTION COL. E.S. GORRELL

Dear Colonel Gorrell:

During our conversation of November 8th in your office regarding Triplex, I promised to send you a resume of the Underwriters' Report on Triplex Glass. This you will find enclosed.

I also stated that I would check into the prices given to Mr. Koskovics over the telephone by Mr. Edwards. After discussing this with Mr. Edwards, it seems that there must be some misunderstanding in the telephone transmission of these prices, as the prices Mr. Edwards had in mind were the prices that he had given me in the pencil memorandum which I had with me during my visit with you in Indianapolis. This price was $3.14 per sq. ft. net for Triplex Standard Quality (plate) sealed, and $1.71 per sq. ft. net for Triplex Utility Quality (sheet) sealed.

If we were to furnish Triplex Glass without the seal, a deduction from the above prices of 35¢ per sq. ft. would be effected. Of course, the grinding and polishing on both Triplex Standard and Utility Qualities is 1/2¢ per linear inch for straight edges and 1¢ per linear inch for curved edges.

Since our discussion, I thought that possibly you would be interested in having a complete price breakdown on the prices mentioned above by models, showing complete equipment of Triplex Standard Quality, complete equipment of Triplex Utility Quality, and complete equipment of Triplex Utility Quality except the windshield which would be made of Triplex Standard quality. We have also included the Protex figure for the equipment alone, to which must be added 1-1/2¢ per sq. ft. for boxing, which, I understand, you were paying the Mississippi Glass Company.

I am also supplying Mr. Edwards with copies of these prices, and I trust that they are self explanatory. However, if there should be any further question on this subject, we would be most pleased to hear from you.

Yours very truly,

(Signed) - T. A. Calhoun

Manager - Sales Department

1211

964

[fol. 1212] **PLAINTIFF'S EXHIBIT NO. 12**

December 11, 1928.

Colonel E. S. Gorrell, Vice President, Stutz Motor Car Co. of America, Inc., Indianapolis, Ind.

MY DEAR COLONEL GORRELL:

In answer your favor of December 8th, I wish to confirm the statement in my telegram sent to you yesterday that we are not paying rebates in any form to any uswers of Triplex. We understand that this practice was followed by plate glass manufacturers, but we have never done so, as we think that is is a bad practice. Pierce-Arrow has not been getting any rebates from us and neither has anybody else.

Regarding the question of price, our figure to you was based on the fact that from our factory point of view we would not have quantity production. The prices you have in mind are evidently those quoted by people who are figuring on quantity business, and we are familiar with this situation. On Triplex Utility Quality we are perfectly willing to make the base price to you unsealed $1.45 per square foot, and $1.55 per square foot sealed, provided we get orders so that we can run through the factory a minimum of 500 pieces of one size and shape at a time.

We strongly advise the use of the seal as we believe that any laminated glass made without a seal may develop defects in the future. Unsealed laminated glass has not been in use long enough to satisfy us that there is no danger. Some of our small competitors, who have been selling unsealed laminated glass for years, and who have been having trouble, are now sealing their products and we know that the manufacturers of Duplate are giving the question of sealing serious consideration, all of which substantiates our opinion that a seal is necessary.

It is obvious that the exposed edge of the celluloid will deteriorate faster than the sealed edges and as celluloid will absorb moisture, it is likely to ultimately effect the lami-
[fol. 1213] nation. Trouble of this character creates a problem for you that tends to impair the owner's goodwill. In the edges of lights that go into frames, as I told you

during my last visit, it is probably alright not to seal, provided the installation is made as we advise. Ford windshields are not sealed, but they are completely surrounded by a frame.

On the tailor-made jobs where only a few lights of a size are required, our price on Utility will be $1.71 per square foot sealed, and $1.61 unsealed, the justice of which you can readily appreciate. Of the 14,000 lights we have on order there are 46 sizes, and only 7 pieces out of the 46 sizes can be made on a production basis.

On Standard Quality plate glass Triplex, following the same idea, our prices per square foot to you will be $2.25 unsealed, $2.55 sealed, on quantity orders, and $3.14 sealed and $2.84 unsealed on tailor-made jobs. The reason for the larger differential is that the breakage that takes place in sealing causes a heavier loss on the higher priced product.

Since quoting you last, the price of celluloid has advanced 30% and as our quotation was based on the costs of materials, we know you will appreciate the fact that we are doing everything we can to co-operate by absorbing this in our prices, which is only possible because we are continuing to improve our efficiency and reduce our costs. We hope to make considerable further progress along these lines as we continue to do business with you. Only recently we were successful in greatly improving upon our method of sealing.

You can rest assurred that I am going to see that the Stutz Company gets a square deal, and I am writing you this letter now to cover the matter temporarily, as I will discuss it with you fully next week when I am in Indianapolis.

Very truly yours, Neilson Edwards, Vice-President.

(Here follows 1 photo, side folio 1214.)

PLAINTIFF'S EXHIBIT NO. 13.

...e would believe them to be supernat-...ural."

Chrysler Adopts Triplex Glass

NO WIRE USED IN IT; WILL NOT THROW SPLINTERS UPON IMPACT

An innovation emphasizing the safety element of modern motoring is seen in the announcement today that the Chrysler Sales Corporation is now prepared to offer Triplex Glass as optional equipment in all models. This marks the first adoption of a clear-vision glass, designed to eliminate danger of cuts in case of accident, by any American automobile manufacturer.

In a booklet prepared for Chrysler dealer, six reasons for this step are cited. It is explained that Triplex Glass, being built of two layers of selected plate glass with a binding middle layer of pyroxalin plastic, is flexible under impact, and therefore does not throw splinters. That it softens the sun's direct rays, breaks headlight glare, and eliminates condensation in closed cars during winter driving, are other reasons. It is further stated that it can not be cut with a diamond and thereby renders closed cars less susceptible to theft.

Triplex is indistinguisable to the eye from ordinary types of plate glass, having no wires in its construction. The installation in Chrysler models will be made at a slight extra charge. Manufacture of this glass in this country by an American company started last year, although it has been widely used in Europe for fourteen years.

From the Adams City Post and many other papers

THE TRIPLEX SAFETY GLASS CO.
of North America, Inc.
Hoboken Terminal, Hoboken, N. J.

PLAINTIFF'S EXHIBIT NO. 11.

DIRECTORS
Eugene V. R. Thayer
Charles M. Schwab
Hicks A. Weatherbee
Willard A. Mitchell
Charles Reed
Fredrick C. Moskovics
Edgar S. Gorrell

STUTZ MOTOR CAR COMPANY
of AMERICA, *Inc.*

INDIANAPOLIS, IND., U.S.A.

CABLE ADDRESS, "STUTZ"

Saturday
December
Eight
1928

12-10-1928

Col. E. S. Gorrell.
Letter December eighth
receiving careful attention
will advise you fully but can
assure you assume no rebates
Confidential being paid anyone &
accept with pleasure invitation
for nineteen

Mr. Neilson Edwards
Chase Securities Corporation
Chase National Bank Building
60 Cedar Street
New York City, N. Y.

My dear Edwards:

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3.14 1.71 Sealed
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1.85 1.55 sealed
500 pieces at time

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Samples Cadillac

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Cy. 11

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Vice President

ESC RLM

1210

Ex. 11

COPY

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Nov. 13, 1928

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During our conversation of November 8th in your office regarding Triplex, I promised to send you a resume of the Underwriters' Report on Triplex Glass. This you will find enclosed.

I also stated that I would check into the prices given to Mr. Koskovics over the telephone by Mr. Edwards. After discussing this with Mr. Edwards, it seems that there must be some misunderstanding in the telephone transmission of these prices, as the prices Mr. Edwards had in mind were the prices that he had given me in the pencil memorandum which I had with me during my visit with you in Indianapolis. This price was $3.14 per sq. ft. net for Triplex Standard Quality (plate) sealed, and $1.71 per sq. ft. net for Triplex Utility Quality (sheet) sealed.

If we were to furnish Triplex Glass without the seal, a deduction from the above prices of 35¢ per sq. ft. would be effected. Of course, the grinding and polishing on both Triplex Standard and Utility Qualities is 1/2¢ per linear inch for straight edges and 1¢ per linear inch for curved edges.

Since our discussion, I thought that possibly you would be interested in having a complete price breakdown on the prices mentioned above by models, showing complete equipment of Triplex Standard Quality, complete equipment of Triplex Utility Quality, and complete equipment of Triplex Utility Quality except the windshield which would be made of Triplex Standard quality. We have also included the Protex figure for the equipment alone, to which must be added 1-1/2¢ per sq. ft. for boxing, which, I understand, you were paying the Mississippi Glass Company.

I am also supplying Mr. Edwards with copies of these prices, and I trust that they are self explanatory. However, if there should be any further question on this subject, we would be most pleased to hear from you.

Yours very truly,

(Signed) - T. A. Calhoun

Manager - Sales Department

1211

964

[fol. 1212] **PLAINTIFF'S EXHIBIT NO. 12**

December 11, 1928.

Colonel E. S. Gorrell, Vice President, Stutz Motor Car Co. of America, Inc., Indianapolis, Ind.

My Dear Colonel Gorrell:

In answer your favor of December 8th, I wish to confirm the statement in my telegram sent to you yesterday that we are not paying rebates in any form to any uswers of Triplex. We understand that this practice was followed by plate glass manufacturers, but we have never done so, as we think that is is a bad practice. Pierce-Arrow has not been getting any rebates from us and neither has anybody else.

Regarding the question of price, our figure to you was based on the fact that from our factory point of view we would not have quantity production. The prices you have in mind are evidently those quoted by people who are figuring on quantity business, and we are familiar with this situation. On Triplex Utility Quality we are perfectly willing to make the base price to you unsealed $1.45 per square foot, and $1.55 per square foot sealed, provided we get orders so that we can run through the factory a minimum of 500 pieces of one size and shape at a time.

We strongly advise the use of the seal as we believe that any laminated glass made without a seal may develop defects in the future. Unsealed laminated glass has not been in use long enough to satisfy us that there is no danger. Some of our small competitors, who have been selling unsealed laminated glass for years, and who have been having trouble, are now sealing their products and we know that the manufacturers of Duplate are giving the question of sealing serious consideration, all of which substantiates our opinion that a seal is necessary.

It is obvious that the exposed edge of the celluloid will deteriorate faster than the sealed edges and as celluloid will absorb moisture, it is likely to ultimately effect the lami-
[fol. 1213] nation. Trouble of this character creates a problem for you that tends to impair the owner's goodwill. In the edges of lights that go into frames, as I told you

during my last visit, it is probably alright not to seal, provided the installation is made as we advise. Ford windshields are not sealed, but they are completely surrounded by a frame.

On the tailor-made jobs where only a few lights of a size are required, our price on Utility will be $1.71 per square foot sealed, and $1.61 unsealed, the justice of which you can readily appreciate. Of the 14,000 lights we have on order there are 46 sizes, and only 7 pieces out of the 46 sizes can be made on a production basis.

On Standard Quality plate glass Triplex, following the same idea, our prices per square foot to you will be $2.25 unsealed, $2.55 sealed, on quantity orders, and $3.14 sealed and $2.84 unsealed on tailor-made jobs. The reason for the larger differential is that the breakage that takes place in sealing causes a heavier loss on the higher priced product.

Since quoting you last, the price of celluloid has advanced 30% and as our quotation was based on the costs of materials, we know you will appreciate the fact that we are doing everything we can to co-operate by absorbing this in our prices, which is only possible because we are continuing to improve our efficiency and reduce our costs. We hope to make considerable further progress along these lines as we continue to do business with you. Only recently we were successful in greatly improving upon our method of sealing.

You can rest assurred that I am going to see that the Stutz Company gets a square deal, and I am writing you this letter now to cover the matter temporarily, as I will discuss it with you fully next week when I am in Indianapolis.

Very truly yours, Neilson Edwards, Vice-President.

(Here follows 1 photo, side folio 1214.)

PLAINTIFF'S EXHIBIT NO. 13.

...e would believe them to be supernat-...ural."

Chrysler Adopts Triplex Glass

NO WIRE USED IN IT; WILL NOT THROW SPLINTERS UPON IMPACT

An innovation emphasizing the safety element of modern motoring is seen in the announcement today that the Chrysler Sales Corporation is now prepared to offer Triplex Glass as optional equipment in all models. This marks the first adoption of a clear-vision glass, designed to eliminate danger of cuts in case of accident, by any American automobile manufacturer.

In a booklet prepared for Chrysler dealer, six reasons for this step are cited. It is explained that Triplex Glass, being built of two layers of selected plate glass with a binding middle layer of pyroxalin plastic, is flexible under impact, and therefore does not throw splinters. That it softens the sun's direct rays, breaks headlight glare, and eliminates condensation in closed cars during winter driving, are other reasons. It is further stated that it can not be cut with a diamond and thereby renders closed cars less susceptible to theft.

Triplex is indistinguisable to the eye from ordinary types of plate glass, having no wires in its construction. The installation in Chrysler models will be made at a slight extra charge. Manufacture of this glass in this country by an American company started last year, although it has been widely used in Europe for fourteen years.

From the Adams City Press and many other papers

THE TRIPLEX SAFETY GLASS CO.
of North America, Inc.
Hoboken Terminal, Hoboken, N. J.

1214

[fol. 1215] **PLAINTIFF'S EXHIBIT NO. 14**

Memorandum Agreement, entered into this 20th day of December, 1928, between the Triplex Safety Glass Company of North America, Inc., of Clifton, New Jersey, hereinafter called the "Seller," and the Stutz Motor Car Company of America, Inc., of Indianapolis, Indiana, hereinafter call- the "Buyer".

Witnesseth: The Seller agrees to sell, and the Buyer agrees to purchase one (1) year's requirements of Triplex Safety Glass of both Standard and Utility quality, at the price, and upon, and subject to the following terms, conditions, specifications, and to Buyer's blueprint, the following articles, hereinafter referred to as the "Articles".

Buyer's part number	Part name	Price
	Our entire year's requirement—	
	Standard Quality	$2.25 sq. ft.
	Utility Quality	$1.45 sq. ft.

Prices mentioned above are for glass unsealed.

F. O. B.: Clifton, N. J.

Terms: [2]*% 10th prox net [30 days]*

Deliveries: Seller will deliver to Buyer without charge for boxing, crating, or storage, suitably packed to secure lowest transportation cost, and in accordance with requirements of the Common Carriers, at such times between December 20, 1928, and December 20th, 1929, as Buyer may designate on its regular form of purchase order, or by written delivery schedule furnished the Seller.

Deliveries: Seller agrees to increase, or decrease, deliveries, as Buyer may direct, upon receiving notice from Buyer to do so. Buyer will give releases in form of regular bona fide purchase orders for its requirements, with bona fide delivery specifications thereon. These orders to be issued by the Buyer approximately every 60 days.

In the event the above schedules have been given, Seller agrees to have the month's schedule shipped in its entirety by the 5th of the month, and in case shipment is not made by the 5th of the month, the Seller agrees to stand any

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[* Matter in brackets, struck out in copy.]

[fol. 1216] extra transportation charges incurred in order to meet Buyer's production requirements.

Insolvency and Cancellation: In the event of any proceedings, by or against the Seller, voluntary or involuntary, in bankruptcy, or in solvency, or for the appointment of a Receiver, or Trustee, or an Assignee for the benefit of the Creditors of the property of the Seller; or, in the event of the breach of any of the terms hereof, including the warrants of the Seller, the Buyer may forthwith cancel this agreement, and the orders placed thereunder, by telegram, verbal or by written notice.

In the event of the occurrance of any of the foregoing contingencies, and because thereof, this agreement and the orders placed thereunder are cancelled, and Seller hereby releases the Buyer from all claims of every kind and character, except any claim Seller may have for merchandise delivered to and accepted by the Buyer.

Special Equipment: Unless otherwise herein agreed, special dies, tools and patterns used in the manufacture of said articles shall be furnished by and at the expense of the Seller. Said dies, tools and patterns shall be kept in good condition, and from time to time, when necessary, shall be replaced by the Seller, without expense to the Buyer. However, the Buyer has the option at any time to reimburse the Seller for the whole, or any part of said dies, tools and patterns and replacements, and become the owner, and entitled to the possession of same. All changes in said dies, tools, and patterns, due to Buyer's change of design, or specifications, shall be paid by the Buyer.

Specifications: Said articles shall be according to specifications, drawings, samples, or other description furnished, or adopted, by the Buyer.

Warranties: The Seller warrants articles supplied under this agreement to conform to specifications herein; to be fit and sufficient for the purpose intended, merchantable, and of good material and workmanship, and free from defect.

Inspection and Rejection: All articles shall be subject to the Buyer's inspection within a reasonable period after delivery, irrespective of date of payment thereof, and the Buyer shall promptly notify the Seller of any defects detected, and to hold any articles so claimed to be defective,

[fol. 1217] for the Seller's instructions, and at his risk, for a reasonable period of time, not to exceed 60 days.

The Buyer is responsible only for such materials Seller may have on hand, in transit, or in process of manufacture on Buyer's bona fide purchase orders.

Patent Protection: The Seller warrants that the articles purchased hereunder do not, and will not infringe any Letters Patent granted by the United States of America, or by any country foreign thereto. The Seller covenants and agrees to save harmless, and protect the Buyer, its successors, assigns, customers, and users of its product, against any claim, or demand based upon such infringement and after notice to appear and defect at its own expense any suits at law, or in equity, arising therefrom. If said articles are protected by one, or more, patents and a decree, or judgment be entered in a court of competent jurisdiction holding any such patent, or its claim invalid, or so limited in scope as to impair its protection commercially, this contract may forthwith be cancelled.

Non-Performance Excused: It is agreed that all shipments and deliveries mentioned in this agreement are subject to strikes, fires, accidents, and all other causes beyond the control of the Seller or Buyer.

Remedies, Etc.: The remedies herein reserved shall be cumulative and additional to any other or further remedies provided in law or equity. No waiver of any breach of any provision of this agreement shall constitute a waiver of any other breach or of such provision. Except as herein expressed, there are no antecedents or any other agreements respecting the subject matter hereof. Any modifications or variations of this contract to be binding shall be in writing, executed in behalf of the parties of like authority of this contract.

The Seller shall not, without first obtaining the written consent of the Buyer, in any manner advertise, or publish the fact that the Seller has contracted to furnish the Buyer the articles herein mentioned, and for failure to observe this provision, Buyer may have the right to cancel this agreement without any further liability thereon.

This Agreement is to be construed according to the laws of the State of Indiana, and is non-assignable by the Seller. [fol. 1218] In witness whereof: The parties have hereto

caused these presents to be executed in duplicate the year and date first about written.

Stutz Motor Car Company of America, Inc., by C. D. Kelly. Triplex Safety Glass Co. of North Amer., by (Illegible).

PLAINTIFF'S EXHIBIT NO. 15

Letter—Johnston Glass Company to Haskell, May 20, 1929

(Later Ruled Out)

(Not Printed)

PLAINTIFF'S EXHIBIT NO. 16-A

Purchase Order No. 400½, August 15, 1928

(Not Printed)

PLAINTIFF'S EXHIBIT NO. 16-B

Purchase Order No. 3424, September 20, 1929

(Not Printed)

PLAINTIFF'S EXHIBIT NO. 16-C

Purchase Order No. 4441, January 10, 1930

(Not Printed)

PLAINTIFF'S EXHIBIT NO. 16-D

Purchase Order No. 4556, January 20, 1930

(Not Printed)

PLAINTIFF'S EXHIBIT NO. 16-E

Purchase Order No. 4708, February 4, 1930

(Not Printed)

PLAINTIFF'S EXHIBIT NO. 17

(No Exhibit Marked for this Number)

PLAINTIFF'S EXHIBIT NO. 18

Monthly Statement (Identified)

(Not Printed)

(Here follow 4 photos, side folios 1219, 1220, 1221 and 1222)

PLAINTIFF'S EXHIBIT NO. 19.

	1000			2000			5000			10000		
	F	C	C+P	F	C	C+P	F	C	C+P	F	C	C+P
W. Pl	~~3.35~~ 3.32	3.23	2.81	~~3.27~~ 3.25	3.16	2.74	~~3.17~~ 3.15	3.06	2.64	2.88	2.79	2.37
Dlle. Pl	3.04	2.96	2.66	~~2.96~~ 2.95	2.87	2.57	~~2.86~~ 2.85	2.77	2.47	2.58	2.50	2.20
V Shed	~~1.98~~ 1.97	1.87	1.87	~~1.90~~ 1.89	1.79	1.79	1.80	1.70	1.70	1.51	1.41	1.41
"	1.88	1.80	1.80	1.80	1.72	1.72	1.70	1.62	1.62	~~1.41~~ 1.42	1.34	1.34

Pl. Mader Ex 19

F = Fisher quotation 5/19/31 E.B.

C = @ new celluloid price 1.15

C+P = @ " " " 1.15 and new glass @ 39¢ + 42¢ plate

9721

TRIPLEX SAFETY GLASS COMPANY
OF NORTH AMERICA

G.19

INTER-ORGANIZATION LETTERS ONLY

SUBJECT Quotations Hudson Motors

FROM S. W. Caulfield

IN REPLY ATTENTION OF Dec. 13, 1927

ber 11, the attached price quotations were given to Mr. Haskell for his guid-
ance while in Detroit, methods of arriving at these figures are shown on the at-
tached sheets and in the work papers in the cost estimate file.

S. W. CAULFIELD

SWC:T

TRIPLEX SAFETY GLASS COMPANY
OF NORTH AMERICA

G.19

INTER-ORGANIZATION LETTERS ONLY

SUBJECT Price Quotations Fischer Body

FROM S. W. Caulfield

FOR ATTENTION OF DEC 13, 1927

eference to the quotations given to Fisher Body for General Motors On December
revised estimates were made December 11, Mr. Haskell taking figures obtained
with him to Detroit on that day.

or reference to these figures, see file of cost estimates.

S. W. C.

1220

Quotations to be given Hudson 12/12/27
Ex. 19

			Order 1000 prod 2500 per day	Order 2000 prod 3000 per day	Order 5000 prod 10000 per day	Order 10000 prod 20000 per day	
	Windshields - Plate						
	Fisher quote @ 61" glass 1.15 cell.		323	316	306	289	✓
	Additional cost due to 3⅓" windshields adds to celluloid cost per ft.		10	10	10	10	
(1)	Hudson quote 61" glass 1.15 cell		333	326	316	289	
	Fisher quote @ 42" glass 1.15 cell.		291	274	264	237	✓
	Additional cost due to celluloid		10	10	10	10	
(2)	Hudson quote 42" glass 1.15 cell		291	284	274	247	
	Other Lights - Plate same as Fisher						
(3)	i.e. @ 61" glass	1.15 celluloid	296	287	277	250	✓
(4)	@ 42"	1.15	266	257	247	220	✓
	Windshields - Sheet						
	Fisher quote @ 1.15 celluloid		187	179	170	141	✓
	Addition cost due to 3⅓ ft windshields (20% breakage)						
	Adds to celluloid cost per ft		12	12	12	12	
(5)	Hudson quote	1.15 celluloid	199	191	182	153	
	Other Lights - Sheet - same as Fisher						
	i.e. celluloid @	1.15	180	172	162	134	✓

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1427

9720

Quotation Sheet

Dec 1927 Ex 19

	Based on order of per day / " " production per day		1000 / 2500	2000 / 3000	5000 / 10 000	10 000 / 30 000
Based on present prices glass cellulose						
	Windshield Plate	approx 4%	332	325	315	[illegible]
	Other Lights		304	295	285	[illegible]
	Windshields Sheet	4%	197	189	180	[illegible]
	Other Lights		188	180	170	
	Windshield Plate	approx 3%	342	335	325	[illegible]
	" Sheet	"	209	201	192	[illegible]
Based on 1.15 cellulose & present glass						
	Windshield Plate	approx 4%	323	316	306	[illegible]
	Other Lights		296	287	277	[illegible]
	Windshields Sheet	4%	177	169	170	[illegible]
	Other Lights	4%	180	172	162	[illegible]
	Windshields Plate	approx 3%	333	325	316	[illegible]
	" Sheet	" 3%	199	191	182	[illegible]
Based on 1.15 cellulose 39 glass (Plate)						
	Windshields Plate	4%	281	274	2[illegible]	[illegible]
	Other Lights		266	2[illegible]	247	[illegible]
	Windshields Sheet	4%				
	Other Lights					
	Windshields Plate	3%	291	284	274	[illegible]
	" Sheet	3%				

End form

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[fol. 1223] **PLAINTIFF'S EXHIBIT NO. 20**

Lease—Pittsburgh Plate Glass Company and Pittsburgh Safety Glass Company

(Not Printed)

[fol. 1224] **PLAINTIFF'S EXHIBIT NO. 21**

(Copy)

Memorandum of Agreement entered into on the 14th day of December, 1927, by and between Du Pont Viscoloid Company, a corporation of the State of Delaware, herein after referred to as DuPont Company, and Pittsburgh Plate Glass Company, a corporation of the State of Pennsylvania, hereinafter referred to as Pittsburgh Company:

Witnesseth:

Whereas Pittsburgh Company is engaged in the manufacture and sale of plate glass, and has conducted numerous researches and experiments having for their object the development of a non-splintering glass for use in automobile windshields, and has developed a process for such a glass by laminating thin layers of plate glass with sheets of pyroxylin material; and

Whereas DuPont Company is engaged in the manufacture of pyroxylin plastics and is a large producer of pyroxylin sheeting of the kind and grade suitable for use in the manufacture of so-called non-splintering glass; and

Whereas DuPont Company also has conducted numerous researches and experiments having for their object the production of a grade of non-splintering glass suitable for commercial use; and

Whereas the parties hereto desire to enter into a joint enterprise having for its object the manufacture and sale [fol. 1225] of non-splintering glass by the processes and methods heretofore developed by Pittsburgh Company and DuPont Company, and to that end have agreed that a corporation shall be organized for the purpose of manufacturing and selling said glass in the United States and elsewhere, upon the terms and conditions hereinafter set forth;

Now, Therefore, in consideration of the premises and

in consideration of the mutual undertakings of the parties hereto, they have agreed and by these presents do agree with each other as follows:

First. Promptly upon the execution hereof, a corporation shall be organized under the laws of the State of Delaware, with such name as the parties hereafter shall fix by agreement (but for the purpose of identification herein to be referred to as Glass Company) which corporation shall have a capital stock of One Million Dollars ($1,000,000), divided into ten thousand (10,000) common or ordinary shares of the nominal or par value of One Hundred Dollars ($100) per share, which common or ordinary shares shall be vested with sole voting power.

Second. DuPont Company and Pittsburgh Company each shall subscribe for One Hundred Thousand Dollars ($100,000) of the authorized issue of said common or ordinary shares of said Glass Company, and shall pay their respective subscriptions to said Glass Company as and when calls thereon shall be made by the Board of Directors of Glass Company; it being the intention of the parties to [fol. 1226] subscribe in equal half parts for the remainder of the authorized capital from time to time when and as required.

Third. Upon the organization of said Glass Company, the parties hereto shall cause said Company to lease or otherwise acquire, for such term as shall be appropriate for the needs of said Company, suitable real property on which to erect a plant for the manufacture of the non-splintering glass herein referred to, and said parties shall cause said Glass Company to erect on said premises a plant with such capacity for the production of said non-splintering glass as DuPont Company and Pittsburgh Company shall determine.

Fourth. As soon as the selection of said plant site shall be made, both DuPont Company and Pittsburgh Company shall render to Glass Company all reasonable aid and assistance, including the benefit of their knowledge, skill and experience, to the end that a plant on said premises shall be completed at the earliest possible date and placed in continued and successful operation throughout the life of this agreement. All services not advisory in character, how-

ever, and involving the employment of draftsmen, engineers or skilled operators in the employ of either DuPont Company or Pittsburgh Company shall be charged to Glass Company at the fair value for such services.

Fifth. The directors of said Glass Company shall be six (6) in number, and at all elections for directors each stockholder shall have as many votes as shall equal the number of shares held by such stockholder, multiplied by the number of directors to be elected, and any stockholder may [fol. 1227] cast all of his votes for a single director, or may distribute them among any two or more of the number to be elected, as it shall see fit; it being understood and agreed that at all meetings of said directors no action shall be taken upon any question except by a majority vote of the full Board.

Sixth. The parties hereto mutually agree that they will cast their votes at all meetings of the stockholders and directors of said Glass Company in such a manner that each party shall be represented by three (3) members of said Board of Directors, and so that the President and General Manager of said corporation shall be a representative of Pittsburgh Company, and the Chairman of the Board of Directors shall be a representative of DuPont Company.

Seventh. Promptly upon the organization of said Glass Company, both parties hereto agree that they and each of them shall give and grant to said Glass Company the non-exclusive right to use *and* any and all processes, inventions, formulæ, patents or patent rights which the parties hereto, or either of them, shall own at the date hereof, in so far as said processes, inventions, formulæ, patents or patent rights may be used or are directly or indirectly susceptible of application in the manufacture of non-splintering glass consisting of a composite article made by laminating layers of plate glass and pyroxylin sheeting or other plastic materials.

Eighth. If either party hereto during the life of this agreement shall develop or discover any improvement on such laminated glass, or any improved method of manu- [fol. 1228] facturing such glass, the Glass Company shall have the non-exclusive right, without royalty or other payment, to use the same and should any such improvement

or method be developed by a subsidiary company of either party, the parties hereto agree that they will use their best efforts to cause any such subsidiary to grant to the New Company the non-exclusive right to use any such improvement or method without royalty or other payment.

Ninth. If either party should purchase or enter into any contract to purchase any United States or foreign patent on, or any right or rights in, any invention for such laminated glass or improvement thereon, or any process for the manufacture thereof, such party shall deliver forthwith to the Glass Company a written notice and proposal containing:

(1). Notice of such acquisition with description of the invention and detailed information relative to the price paid therefor, and the terms and conditions thereof, including copies of any and all contracts or other written instruments relating thereto.

(2). Either an offer (a) to sell, transfer and assign all rights so acquired by the proposer, to the Glass Company, for the actual price paid by the proposer for the same, plus interest and expenses, if any, and on the terms and conditions, and subject to the royalties, obligations undertaken to be paid, performed and conformed to by the proposer in and by the contract under which it acquired such rights; Or an offer (b) *an offer* of a non-exclusive license to use such patents or rights, subject to the obligations as- [fol. 1229] sumed by the proposer and the payment of a portion of the royalties or payments assumed by the proposer which shall be fixed by agreement and if the parties shall be unable to agree on a fair apportionment of such royalties or charges, then the amount thereof shall be determined by three arbitrators, one to be selected by each party and the third to be selected by the two thus chosen, and the decision of any two of said arbitrators shall be binding on both parties.

(3). A statement of a period of time, not less than thirty (30) days from the service of the notice, within which the Glass Company shall by its officers duly authorized, accept such offer by written instrument delivered to the proposer within the period of time so stated. If offer (a) be made, and be so accepted, then proposer shall assign to the Glass

Company the said patents and/or rights upon payment forthwith of the sum so to be paid therefor, and the Glass Company itself shall assume, so that the proposer thenceforth shall be relieved of all obligations and liabilities, and the performance of all the terms and conditions which were assumed or were to be assumed by the proposer under the terms of the contract whereby the proposer acquired such rights. If offer (b) be made, and be accepted, then the Glass Company shall become obligated for and shall assume the obligations and make the payments provided for in offer (b): or, if there should be an arbitration, the Glass Company shall become obligated for and shall assume such obligations and make such payments as shall be fixed and determined by a majority of the said arbitrators. [fol. 1230] If the offer be not accepted by the Glass Company within the period of time named therein, then the party making the offer shall be under no further obligation to the Glass Company with respect to the patents, rights, etc. so purchased.

Tenth. In order to promote the best interests of both of the parties hereto, to the end that they both shall have and enjoy the maximum benefit and profit from the joint understanding herein referred to, it is agreed that said Glass Company shall purchase and accept from DuPont Company all pyroxylin plastics, and from Pittsburgh Company all polished plate glass and/or window glass, and from either or both of said companies all other basic materials which shall be needed, required or used in the business of said Glass Company, provided always that any and all such materials so purchased by Glass Company from either party hereto shall be sold and delivered by such party at a price which shall not be more than the price for said basic materials which either party hereto shall offer to or receive from its more favored customers for similar quantities.

Eleventh. Both DuPont Company and Pittsburgh Company agree that it is the spirit and intention of this agreement, until the processes herein referred to shall be perfected to a degree satisfactory to both parties, capital expenditures by said Glass Company shall be curtailed as far as possible, and that permanent investment by said company for plant and equipment shall be made only upon and according to the agreement of both parties.

[fol. 1231] Twelfth: It is further mutually understood and agreed that the certificate of incorporation of said Glass Company shall contain all necessary provisions in order to carry out the terms and conditions of this agreement, to the satisfaction of counsel for both of the parties hereto.

Thirteenth: In order to secure safe and prudent management in the interest of the whole number of stockholders of said Glass Company, and to prevent the purchase of its stock for speculative purposes, it is agreed that neither party hereto shall sell, assign, hypothecate or in any wise encumber its stock interest in said Glass Company for a period of five (5) years from the date hereof, and that after such date neither party hereto shall so sell, assign or otherwise dispose of its stock interest in said Glass Company unless and until said stock first shall be offered to the other party to this agreement, at a price not greater than that which shall be fixed by bona fide offers from others. And in the event that either party hereto shall sell or assign its stock interest in said Glass Company, it is covenanted and agreed that the party hereto making any such sale shall bind the purchase of such stock to keep and perform the conditions of this agreement and assume all of the obligations with respect to the ownership thereof that the parties hereto have by these presents assumed toward each other; it being understood and agreed always that the party making any such sale shall not be released from any subscription contract or other liability to the Glass Company, without the written consent of the other party hereto.
[fol. 1232] Nothing herein contained shall operate to prevent either party hereto from transferring said stock to any company owned or controlled by it to any company owning or controlling a majority of its stock.

Fourteenth. It is the understanding and intention hereof that as and when Glass Company shall have completed the construction of its plant and shall produce non-splintering glass suitable for sale, Pittsburgh Company shall be the sole and exclusive sales agent for said Glass Company on such terms and conditions as hereafter shall be fixed by separate agreement between said Pittsburgh Company and said Glass Company; it being the further understanding and intention that unless Pittsburgh Company and DuPont Company otherwise agree, such exclusive agency shall be

terminated if Pittsburgh Company shall engage in the manufacture of non-splintering glass.

In Witness Whereof the parties hereto, by their officers duly authorized, have caused this agreement to be executed, and their respective corporate seals to be hereunto affixed, on the day and year first above written.

Du Pont Viscoloid Company, by F. B. Davis, Jr., President.

Attest: M. D. Fisher, Secretary. (Seal.)

Pittsburgh Plate Glass Company, by Charles W. Brown, President.

Attest: C. S. Lamb, Secretary. (Seal.)

Form approved: C. M. Spargo, Legal Department.

(Here follow 8 photos, side folios 1233-1240.)

980A

PLAINTIFF'S EXHIBIT NO. 22.

Pl. Masters No. 22
5/22/31 E.B.

Pittsburgh Plate Glass Company

Works No. 1

H. B. HIGGINS, General Sales Manager

Date 5/3/28

(5)

We have to-day delivered to the Laminated Glass Department, the following glass:

CHECK	FOR ORDER	No. PLATES	SIZE	QUALITY	FEETAGE		
#1386		4	16 7/16 x 29 7/8	Glazing 7/8 4	5 15	—	—
		2	11 3/16 x 47		x 7	—	—
2732 D		54	14 7/16 x 21 7/16	1-25B	x 132	—	—
		54	15 x 21 7/16		x 132	—	—
217		16	11 3/8 x 31		x 4	8	—
250		2	15 5/8 x 42 3/8	25	x 9	9	4
		4	16 3/8 x 29 3/8		x 15	—	—
		2	9 1/4 x 28 3/4	1-25B	x 4	2	—
		2	9 5/8 x 44 3/4	25A	x 6	4	8
		2	8 x 44 3/4	1-25B	x 5	1	4
83		6	6 7/16 x 7 11/16	3"	x 2	4	0
		1	6 x 23	6"	x 0	11	6
495		2	15 x 48 1/2	5-7	x 11	1	4
7075 a		8	21 5/8 x 56	2-9	x 64	5	4
			x				

Remarks

452-11-6

Received

Laminated Glass Dep't.

980B

Ey 22
P.2.

Pittsburgh Plate Glass Company

Works No. 1

H. B. HIGGINS, General Sales Manager

Date May 2[illegible] 1920

(4)

We have to-day delivered to the Laminated Glass Department, the following glass:

CHECK	FOR ORDER	No. PLATES	SIZE	QUALITY	FEETAGE		
#220		4	[illegible]	[illegible]	X 3	10	-
#844		3	[illegible]	25	X 7	2	8
		2			X 7	2	8
		2	[illegible]	5-7	X 12	2	8
		4	10/8 [illegible]	25	X 11	1	4
#845		2	7/8 [illegible]	1-25B	X 4	8	-
		2	7 [illegible]		X 4	8	-
#2731 D.		2	11/16 [illegible]	1-25A	X 3	-	-
		2	10/10 [illegible]	1-25B	X 3	8	-
		2			X 3	8	-
		2	12 1/8 15 1/4	1-25A	X 3	1	[illegible]
		2	13 20 1/2	1-25B	X 4	3	[illegible]
		2	13 1/8 20		X 3	10	[illegible]
		2	13 1/2 18	1-25A	X 3	6	[illegible]
		2	11 5/8 "		X 3	-	[illegible]
		2	13 3/8 "		X 3	6	[illegible]
		2	14 1/4 15 3/4		X 3	[illegible]	[illegible]

Remarks

86-1[illegible]

Received.....

Laminated Glass Dep't.

1234

980C

PLAINTIFF'S EXHIBIT NO. 22-A.

Form 989

Pittsburgh Plate Glass Company

Works No. 1

F. W. Judson, Director of Sales

Date 6/1/30

We have to-day delivered to the Laminated Glass Department, the following glass: Pierce Grease

CHECK	FOR ORDER	No. PLATES	SIZE	QUALITY	FEETAGE		
			Deliveries Mirror				
124559	51	100	12 x 6	Clear? not	325		
			x				
			x				
			x				
			x				
			x				
			x				
			x				
			x				
			x				
			x				
			x				
			x				
			x		325	6	0

Remarks

6011 5 d

Received

Laminated Glass Dep

7235

980D

Form 989

(28)

Ev. 22-a
P.2

Pittsburgh Plate Glass Company

Works No. 1

F. W. Judson, Director of Sales

Date 5/6/30.

We have to-day delivered to the Laminated Glass Department, the following glass: Studebaker

CHECK	FOR ORDER	No. PLATES	SIZE	QUALITY	FEETAGE		
			Deliveries				
242369 E	345	200	15 3/4 . 17 5/16	Clear 3/16	400	0	0
242571 E	357	236	14 . 32	" "	734	2	8
251168 E	364	1025	14 . 44	" "	4384	8	8
					5518	11	4

Remarks

1236

Received

Laminated Glass Dep't.

PLAINTIFF'S EXHIBIT NO. 22-B.

Pl. Martin Ex 22-B
5/22/31 P.B

Form 980

(34)

Pittsburgh Plate Glass Company

Works No. 1

F. W. Judson, Director of Sales

Date 5-8-27.

We have to-day delivered to the Laminated Glass Department, the following glass: Pierce Grove Delivery

CHECK	FOR ORDER	No. PLATES	SIZE	QUALITY	FEETAGE		
	244	400	17 x 26	1-7/64 SS	1300	0	0
			Lester Pro.				
D	244	1000	13 x 42	2-" "	4083	4	0
			J N Smith				
D	236	400	14 x 44	2-" "	1711	1	4
D	236	1000	13 x 43	" "	4277	9	4
			Martin Perry				
	62	240	14 x 40	" "	933	4	0
			Ainsworth				
D	280	25	12 x 44	2-" "	91	8	0
upstock		90	16 x 40	1-"	400	0	0
		50	16 x 42	1-"	233	4	0
		120	16 x 44	" "	586	8	0
		30	16 x 46	" " 5-7	153	4	0
Remarks		100	14 x 42	" " SS	408	4	0

14178-10-8

17590-0-8

Received

9801

Form 980

(40)

Pittsburgh Plate Glass Company

Cr. 22-1 P.2

Works No. 1

F. W. Judson, Director of Sales

Date 5-9-29.

We have to-day delivered to the Laminated Glass Department, the following glass: Fisher Deliveries

CHECK	FOR ORDER	No. PLATES	SIZE	QUALITY	FEETAGE		
Pat 7	95	1400	16 x 46	1-7/645-7	1155	6	8
" 14		500	18 x 24	" " 25	1500	0	0
" 4		500	18 x 20	" " 1-5B	1250	0	0
" 13		800	18 x 26	" " 25	2600	0	0
			J. K. Smith				
D	236	816	13 x 43	2-"	3490	8	0
			Pierce Arrow				
	109	40	20 x 52	1-"7-10	288	10	8
			Martin Perry				
	60	200	14 x 42	2-" 25	816	8	0
			Motor Pro.				
D	244	400	13 x 42	2-"	1633	4	0

Remarks

19735-1-4

19627-9-4

Received

Laminated Glass Dep't.

1238

PLAINTIFF'S EXHIBIT NO. 23.

GOODS SHIPPED AT PURCHASER'S RISK OF BREAKAGE UNLESS INSURANCE IS SPECIFICALLY EFFECTED
ALL CLAIMS MUST BE MADE WITHIN THREE DAYS FROM RECEIPT OF GOODS

Pittsburgh Plate Glass Company.

GLASS - MIRRORS - PAINTS

TERMS: 30 DAYS NET
1% CASH 10 DAYS.

2223 GRANT BLDG.

CABLE ADDRESS "GLASSPIT"

PITTSBURGH, PA. 5- 1929 19

SOLD TO

CAR NO.

WORKS OUR ORDER

SHIPPED TO

CASES YOUR ORDER

SHIPPED VIA

MEMO	PLATES	SIZE	QUALITY	FEET		PRICE	AMOUNT	TOTAL
			Qual. 1- 7/64	28/5	59385-10-0	.45	26723.62	
			(Mir Glas)	5/7	268-4-0	.49	131.48	
				7/10	4209-9-4	.51	2146.99	
			Qual. 11. "	1/28B	25-0-0	.35	8.75	
			(Glas)	28/5	69218-0-9	.39	26995.04	
				5/7	8724-9-4	.42	3664.41	
				7/10	1134-11-4	.43	488.02	
				10/15	334-0-0	.44	146.96	
			Qual.1. 7/64"	1/28B	1250-0-0	.39	487.50	
			(Mir Glas.)	28/5	17105-4-8	.45	7697.43	
				5/7	19924-0-0	.49	9762.76	
					38279-4-8			78252.98
					less 1%			782.53
								$77470.43

1239

9801

GOODS SHIPPED AT PURCHASER'S RISK OF BREAKAGE UNLESS INSURANCE IS SPECIFICALLY EFFECTED
ALL CLAIMS MUST BE MADE WITHIN THREE DAYS FROM RECEIPT OF GOODS

Pittsburgh Plate Glass Company.

GLASS - MIRRORS - PAINTS

TERMS: 30 DAYS NET
1% CASH IO DAYS.

2225 GRANT BLDG.

CABLE ADDRESS
"GLASSPIT"

PITTSBURGH, PA. 5-1929 19

SOLD TO Duplate Corp.
Creighton, Pa.

SHIPPED TO

OUR ORDER
YOUR ORDER
WORKS 1
CASES
CAR NO.
SHIPPED VIA

MEMO	PLATES	SIZE	QUALITY	FEET		PRICE	AMOUNT	TOTAL
			Qual. 1- 7/64	28/5	59385-10-0	.45	26723.62	
			(Mir Glaz)	5/7	268-4-0	.49	131.48	
				7/10	4209-9-4	.51	2146.99	
			qual. 11. "	1/28B	25-0-0	.35	8.75	
			(Glaz)	28/5	69218-0-8	.39	26995.04	
				5/7	8724-9-4	.42	3664.41	
				7/10	1134-11-4	.43	488.02	
				10/15	334-0-0	.44	146.96	
			qual. 1. 7/64"	1/28B	1250-0-0	.39	487.50	
				28/5	17105-4-8	.45	7697.43	
			(Mir.Glaz)	5/7	19924-0-0	.49	9762.76	
					38279-4-8			78252.96
					Less 1%			782.53
								77470.43
			5/15 Less Partial Payment per Vdy. Sub No. 3386					53500.00
								23970.43

Voucher No. 3487

End form

1240

[fol. 1241] **PLAINTIFF'S EXHIBIT NO. 24**

License Agreement

Agreement made this 20th day of May 1929, between Triplex Safety Glass Company of North America, a corporation organized under the laws of the State of Delaware and having its principal office in Clifton, in the State of New Jersey, hereinafter called the "Licensor", and The Johnston Glass Company, a corporation organized under the laws of the State of Indiana and having its principal office in Hartford City, in the State of Indiana, hereinafter called the "Licensee."

Whereas the Licensor is the owner of the entire right, title and interest, within and throughout the United States and the territories and colonial possessions thereof, in and to several inventions relating to the manufacture of laminated glass, and of several letters Patent of the United States for some of such inventions, the numbers, dates of issues, names of inventors and titles of which are as follows:

Number	Date	Name	Title
1,098,342	May 26, 1914	Edouard Benedictus	Reinforced Glass and Process of Manufacturing the Same.
1,128,094	Feb. 9, 1915	Edouard Benedictus	Reinforced Glass and Its Manufacture.
1,182,739	May 9, 1916	Edouard Benedictus	Manufacture of Strengthened Glass.
1,206,656	Nov. 28, 1916	Edouard Benedictus	Press Plate.
1,342,267	June 1, 1920	Leon Francois Mascart	Reinforced Glass and Process of Making the Same.
1,342,268	June 1, 1920	Leon Francois Mascart	Manufacture of Reinforced Glass.
1,686,942	Oct. 9, 1928	Henry J. Thielker	Speech Vent.
1,703,122	Feb. 26, 1929	Henry J. Thielker	Gun Port for Windshields.

[fol. 1242] and is the owner of the entire right, title and interest in and to further improvements and inventions relating to the manufacture of laminated glass, for which further improvements and inventions it is the intention of the Licensor to obtain Letters Patent of the United States if possible, and is from time to time developing and perfecting or causing to be developed and perfected and is acquiring further improvements and inventions relating to the manufacture of laminated glass; and

Whereas, the Licensee is desirous of acquiring the right and license to make, use, practice and employ throughout the United States and the territories and colonial possessions thereof in the manufacture of laminated glass the inventions and improvements described and claimed in said several letters Patent of the United States and said further improvements and inventions, upon the terms and conditions hereinafter set forth.

Now, Therefore, in consideration of the premises and of the mutual covenants hereinafter made, and of the sum of One Dollar by each party to the other in hand paid, the receipt whereof is hereby acknowledged, the parties hereto have agreed together as follows:

First: The Licensor hereby grants to the Licensee the right and license to make, use, practice and employ in the manufacture of laminated glass, and to sell the same throughout the United States and the territories and colonial possessions thereof, the inventions and improvements described and claimed in said several Letters Patent of the United States and said further improvements and inventions. The said right and license shall be non-exclusive, [fol. 1243] indivisible, non-assignable and non-transferable either by operation of law or by act of party, except to successors to substantially the entire business of the Licensee of manufacturing laminated glass, together with the good will of the same.

It is understood that the right and license herein given and granted is given and granted subject to the approval of Triplex Safety Glass Company, Ltd., of London, England, so far as such approval shall be required or necessary.

Second. This agreement and all of the rights and licenses given and granted by the Licensor to the Licensee under the terms of this agreement shall continue and remain in full force and effect, subject to the expiration in the meantime of any Letters Patent covered by or included within the scope of this agreement, until January 1, 1950, unless the same shall be terminated in any manner hereinafter provided.

Third. The Licensee admits the validity of the said several Letters Patent and the exclusive rights of the Licensor therein and thereunder and will not contest the same directly or indirectly or aid any other party in so doing.

Fourth. The Licensee shall keep true and accurate books of account covering the manufacture and sale or other disposition by it of laminated glass embodying any of the inventions or improvements covered by or included within the scope of this agreement and shall permit the duly authorized representative of the Licensor, at all reasonable times during business hours, to inspect such books of account.

Fifth. The Licensee shall within thirty (30) days after the first day of January, April, July and October of each [fol. 1244] year during the continuance of this agreement deliver to the Licensor a written statement specifying all laminated glass embodying any of the inventions or improvements covered by or included within the scope of this agreement which shall have been made, sold, or otherwise disposed of by the Licensee during the three preceding months, tog-ther with the prices at which the same is sold or otherwise disposed of and the names and addresses of the parties to whom the same is sold or otherwise disposed of and the quantity sold or disposed of to each such party, the first such written statement to be rendered within thirty (30) days after June 1st, 1929 and to cover all such laminated glass made, sold or otherwise disposed of by the Licensee prior to the first day of June 1929.

Sixth. The Licensee shall pay to the Licensor within thirty (30) days after the first day of January, April, July and October of each year during the continuance of this agreement, in respect of all laminated glass sold or otherwise disposed of by the Licensee, a royalty or license fee equal to five percentum (5%) of the price at which such laminated glass is sold or otherwise disposed of by the Licensee, or equal to ten cents (10¢) per square foot of the laminated glass so sold or otherwise disposed of, whichever of such royalties or license fees is the greater.

It is the intention of the Licensor and the Licensee that the sale or other disposition of laminated glass by the Licensee in any calendar year during the continuance of this agreement shall be limited to ten percentum (10%) of the aggregate sales price of laminated glass sold or otherwise disposed of by the Licensor during such calendar year, provided, however, that such ten percentum (10%) limitation shall not in any one year be less than one million dollars ($1,000,000.00). It is expressly understood and agreed that

[fol. 1245] if in any calendar year during the continuance of this agreement the total quantity of laminated glass sold or otherwise disposed of by the Licensee shall exceed such ten percentum (10%) of the aggregate sales price of laminated glass sold or otherwise disposed of by the Licensor during such calendar year or one million dollars ($1,000,000.00), whichever sum shall be the greater, then the Licensee shall pay to the Licensor, before April 1, of the succeeding year, in respect of all the laminated glass sold or otherwise disposed of by the Licensee during the preceding calendar year in excess of such ten percentum (10%) or one million dollars ($1,000,000.00), whichever sum shall be the greater, a royalty or license fee equal to twenty-five percentum (25%) of the prices at which such excess quantity of such laminated glass shall have been sold or otherwise disposed of by the Licensee during such preceding calendar year.

Seventh. The Licensee shall cause each piece of laminated glass sold or otherwise disposed of by the Licensee under the terms of this agreement to be clearly marked with the words "Licensed under Triplex Patents," by stamping said words on the celluloid or etching or sand-blasting said words on the glass, and in all of its advertisements and advertising literature shall state that the glass manufactured and sold or otherwise disposed of by it is manufactured under license under Triplex patents.

Eighth. All laminated glass manufactured or sold by the Licensee during the life of this agreement shall be deemed to be within the scope of Clauses 4, 5 and 6 of this agreement.

Ninth. The Licensor shall from time to time establish fair and reasonable prices and terms for the sale or other disposition of laminated glass embodying any of the inven- [fol. 1246] tions and improvements covered by or included within the scope of this agreement, and shall furnish to the Licensee a written schedule of such prices and terms, and shall from time to time thereafter inform the Licensee in writing of modifications of such schedule simultaneously with putting into effect such modifications by the Licensor; and the Licensee, in consideration of the right and license herein granted, shall sell laminated glass embodying any of the inventions or improvements covered by or included

within the scope of this agreement, only at and upon the prices and terms or conditions and modifications thereof maintained by the Licensor.

Tenth. The Licensor and the Licensee shall from time to time and promptly cause to be imparted on the part of each to the duly authorized representative or representatives of the other, full and detailed information as to all improvements or modifications in the manufacture of laminated glass which are or are thought to be advantageous, either in the way of improving the product or of reducing the cost of manufacture, or otherwise, and if the Licensor shall be advised that any of such modifications or improvements so imparted on the part of the Licensee is patentable to any officer or employee of the Licensee, then and in any such event, but at the option of the Licensor, the Licensee shall inform the Licensor as to the name and residence of the inventor thereof, and the Licensor shall at its expense cause to be prepared an application or applications for Letters Patent thereon, and the Licensee shall cause such application to be executed in due form of law by the inventor, together with an assignment of the entire interest therein to the Licensor, subject to a free license retained by the Licensee for itself and its successors during the continuance of this agreement; and the Licensee shall furnish to [fol. 1247] the Licensor, at the expense of the Licensee, whatever assistance shall be required by the Licensor in the preparation and prosecution of such application for patent.

Eleventh. All laminated glass manufactured by the Licensee under the terms of this agreement shall be subject to the inspection and approval of the Licensor, by its duly authorized representatives, and the Licensee shall at all times during the continuance of this agreement exercise or cause to be exercised all available skill and effort in the selection of materials and in the manufacture of the laminated glass, to the end that the quality of the laminated glass manufactured by it shall be fully equal to the quality of the laminated glass manufactured by the Licensor.

Twelfth. If the Licensee shall fail, neglect or refuse to perform any of the covenants herein made to be performed by it, then the Licensor shall have the right to and may notify the Licensee of such failure, or neglect, or refusal,

and if the Licensee shall not, within thirty (30) days after the service upon it of such notice, make with the Licensor adjustment or settlement of such failure, neglect, or refusal, satisfactory to the Licensor, then the Licensor shall have the right to and may at its option cancel and terminate this agreement, and all the rights, licenses, benefits and privileges of the Licensee therein and thereunder, by giving to the Licensee notice of such termination and cancellation. Each notice provided for in this agreement shall be in writing, and may be served by depositing the same in any Post Office in the United States in an envelope addressed to the Licensee to be forwarded by registered mail, postage prepaid, to the Licensee at the last known Post Office address [fol. 1248] of the Licensee, or by serving the same upon any officer of the Licensee, or by delivering the same at the principal office of the Licensee with an adult in charge thereof.

Thirteenth. The Licensor agrees at its own expense to use all proper means to prevent and stop infringement of the patents above noted. Specifically it agrees, in case substantial infringement exists at any time of any of the patents above noted under which the Licensee is carrying on the manufacture of laminated glass, to bring suit thereon promptly, and to prosecute such suit vigorously and diligently to final decision by a Court of Appeals, if that be necessary to stop the infringement. If as a result of such litigation the trial court refuses to enter a decree against defendant effective to stop the infringement complained of, then the Licensee shall be relieved of its obligation to pay royalty under this contract, until and unless such decree shall be reversed and such infringement enjoined, or until and unless such infringement is stopped as a result of other action by the Licensor within one year from said decree. But the unpaid royalties shall accumulate and be paid to the Licensor when and if such decree is reversed and such infringement enjoined, or when such infringement is otherwise stopped by the Licensor, provided that be done within one year from the date of said decree.

It is understood and agreed that when and if this agreement is terminated in any way, the rights and obligations of each party hereunder shall end, and all rights acquired by virtue of this agreement shall revert to the respective parties, as if this agreement had never been made, and each

shall be free to do anything or take any position as to validity, scope, or infringement of any patents included [fol. 1249] within the scope of this agreement, that could have been done or taken had this license never existed, it being expressly understood and agreed, however, that the title to any patents obtained by the Licensor under the provisions of Clause Tenth of this agreement shall remain and be in the Licensor, and that the Licensee shall have a free license under any and/or all patents or inventions which are made by its employees or officers which the Licensor shall elect to patent under this agreement in so far as the same do not infringe any of the Letters Patent specifically mentioned hereinbefore.

It is understood and agreed that any failure on the part of the Licensor to notify the Licensee of any failure, neglect or refusal on the part of the Licensee, shall not in any manner prejudice the Licensor as to any subsequent failure, neglect or refusal on the part of the Licensee.

It is understood and agreed that no cancellation and termination of this agreement as herein provided shall relieve, release or discharge, the Licensee from the payment to the Licensor of any sum or sums of money due and payable by the Licensee to the Licensor at the time of such cancellation and termination.

It is understood and agreed that if at any time during the continuance of this agreement the Licensor shall enter into with any other party a license agreement similar in character and import to this agreement but upon royalty terms more favorable to the Licensee than the royalty terms provided in this agreement, then this agreement shall be modified so that the royalty terms shall be as favorable to the Licensee herein as those provided in such other license agreement.

In witness whereof, the parties hereto have caused these presents to be signed by their duly authorized officers, and their corporate seals to be hereto affixed and duly attested, [fol. 1250] the day and year first above written.

Triplex Safety Glass Company of North America,
By A. L. Haskell, President. (Seal.)

Attest: S. W. Caulfield, Asst. Secretary.

The Johnston Glass Company, by J. R. Johnston, Jr., President. (Seal.)

Attest: G. T. Fulton, Secretary.

STATE OF ——,
County of ——, ss:

On the — day of ——, 1929, before me, personally came Amory L. Haskell of Triplex Safety Glass Company of North America, the corporation described in and which executed the foregoing agreement, to me known and who, being by me duly sworn, did depose and say that he resides in Middletown, in the State of New Jersey, that he is President of said Triplex Safety Glass Company of North America, and was personally present at the execution of the said agreement and saw the corporate seal of said Triplex Safety Glass Company of North America duly affixed thereto; that he knew the corporate seal of said corporation; that the seal affixed to said agreement is the corporate seal of said corporation and was so affixed by order of the Board of Directors of said corporation, and he, as President and Starr Cooper as Secretary of said corporation, signed their respective names thereto by like order, and that the said agreement was duly signed, sealed and delivered by and as [fol. 1251] and for the act and deed of said The Triplex Safety Glass Company of North America, for the uses and purposes therein mentioned.

In witness whereof, I have hereunto set my hand and affixed by official seal the day and year aforesaid.

Edna H. Barry, Notary Public for the State of New Jersey. My Commission expires Feb. 21, 1933. (Seal.)

STATE OF INDIANA,
County of Blackford, ss:

On the 20th day of May, 1929, before me, personally came John R. Johnston of The Johnston Glass Company, the corporation described in and which executed the foregoing agreement, to me known, and who, being by me duly sworn, did depose and say that he resides in Hartford City, in the State of Indiana, that he is President of said The Johnston Glass Company, and was personally present at the execution of the said agreement and saw the corporate seal of said The Johnston Glass Company duly affixed thereto; that he knew the corporate seal of said corporation; that the seal affixed to said agreement is the corporate seal of said corporation and was so affixed by order of the

Board of Directors of said corporation, and he, as President and George T. Fulton as Secretary of said corporation, signed their respective names thereto by like order, and that the said agreement was duly signed, sealed and delivered by and as and for the act and deed of said The Johnston Glass Company for the uses and purposes therein mentioned.

In witness whereof, I have hereunto set my hand and affixed my official seal the day and year aforesaid.

(Carrie) B. Andrews, Notary Public. My Comm. Expires 10/29/29. (Seal.)

[fol. 1252] **PLAINTIFF'S EXHIBIT NO. 25-A**

Original Invoice—Pittsburgh Plate Glass Company to Triplex Safety Glass Company

(Not Printed)

PLAINTIFF'S EXHIBIT NO. 25-B

Original Invoice—Pittsburgh Plate Glass Company to Triplex Safety Glass Company

(Not Printed)

PLAINTIFF'S EXHIBIT NO. 25-C

Original Invoice—Pittsburgh Plate Glass Company to Triplex Safety Glass Company

(Not Printed)

PLAINTIFF'S EXHIBIT NO. 26-A. 1253

Pl. Master Ex. 26-a
6/10/26 P.A.

DU PONT

DU PONT VISCOLOID COMPANY
INCORPORATED

NO. 8-3278

2-27-29

Pyralin-Viscoloid

NEW YORK

TERMS 2% 10TH MO. N/S
FROM DATE OF INVOICE

SOLD TO TRIPLEX SAFETY GLASS CO
OF NORTH AMERICA
WALNUT & PLEASANT STS
CLIFTON PLANT
PASSAIC NJ

SHIPPED TO

ADDRESS

DESTINATION

M.O. 26567 CUSTOMER'S ORDER OR DATE 11706 DATE SHIPPED 2-26-29 SHIPPED FROM ARL

VIA TRUCK F.O.B. DEST SALESMAN MAGINNES BUSINESS G

2 26-3/10

	AMOUNT
201 SHTS 216 LBS 20/ 50" 1557 SS VAPOR	
1 31 SHT NET	263 31
UNTRIMMED	

CASE # 3966

CASE MARKED ORDER # 11706 - VAPORIZED

Part Shipment

FB/

No 2-120-1929

Acct. No. 56-2
Posted
Rec'd 2/26/29
F.O.B. Clifton
Price O.K. JAB
Ext. O.K.
Approved

512

PLEASE SEND ALL REMITTANCES, FREIGHT BILLS AND OTHER VOUCHERS FOR CREDIT TO DU PONT VISCOLOID CO., INC. TREASURER'S OFFICE, ARLINGTON, NEW JERSEY. INTEREST CHARGED ON ALL BILLS NOT PAID AT MATURITY

1253

PLAINTIFF'S EXHIBIT NO. 26-B

PLAINTIFF'S EXHIBIT NO. 26-B

FORM 12423-5011-12-29

DU PONT

Pyralin-Viscoloid

DU PONT VISCOLOID COMPANY
INCORPORATED

6-13-29

NO. L-377

ARLINGTON Pl. master Ex. 26-B 6/10/31 F.B.

TERMS 2% 10TH MO. F/S FROM DATE OF INVOICE

SOLD TO THE TRIPLEX SAFETY GLASS CO OF NORTH AMERICA

SHIPPED TO

ADDRESS WALNUT & PLEASANTS STS CLIFTON PLANT PASSAIC NJ

DESTINATION 2% 7/10

M.O. 29275-K CUSTOMER'S ORDER OR DATE 11894 DATE SHIPPED 6-12-29 SHIPPED FROM ARL

VIA TRUCK F.O.B. DEST SALESMAN JOSLYN BUSINESS G

								AMOUNT
525 SHTS	422 LBS	20/	36"	31610	SS VAPOR	1 08	SHT NET	567 00
1050 SHTS	853 LBS	20/	36"	31610	VAULT VAPOR	1 03	SHT NET	1081 50
								1648 50

BOTH ITEMS UNTRIMMED

CASES # 13882-84 INCL
13903-05 INCL
13921-23 INCL

[illegible] SETTLEMENT IF [illegible] BY A CHECK

PAY [illegible]

CASES MARKED ORDER # 11894

PB/

Part Shipment

NO RETURN WILL BE ACCEPTED UNLESS AUTHORIZED BY SALES OFFICE

Vo 6-120-1929

Acct. No. 50-2
Posted
Rec'd 6/12
F.C.B. Wks
Price O.K. [illegible]
E[illegible]
Approved [illegible]

Jul 137

7#

1254

PLEASE SEND ALL REMITTANCES, FREIGHT BILLS AND OTHER VOUCHERS FOR [illegible] TO DU PONT VISCOLOID CO., INC. TREASURER'S OFFICE, ARLINGTON, NEW JERSEY. INTEREST CHARGED ON ALL BILLS NOT PAID AT MATURITY.

PLAINTIFF'S EXHIBIT NO. 26-C.

DU PONT

DU PONT VISCOLOID COMPANY
INCORPORATED

NO. S-22661

ARLINGTON 12-17-29 TERMS 2% 10TH NO. E/S
FROM DATE OF INVOICE

Pyralin-Viscoloid

SOLD TO TRIPLEX SAFETY GLASS CO
OF NORTH AMERICA
ADDRESS WALNUT & PLEASANT STS
CLIFTON N J

SHIPPED TO
DESTINATION

M.O. 45694 CUSTOMER'S ORDER OR DATE 100522 DATE SHIPPED 12-16-29 SHIPPED FROM ARLINGTON
VIA TRUCK F.O.B. DEST SALESMAN W A JOSLYN BUSINESS G

2 10/10

	AMOUNT
25 SHTS 20 LBS 20/ 20X36" 7555 HH 1 10 SHT NET	27 50

Dec
155

THIS SHIPMENT COMPLETES YOUR ORDER

CASE 73272

EF

NO RETURN WILL BE ACCEPTED
UNLESS AUTHORIZED BY SALES OFFICE
V012-109-1929

Acct. No. 50-2
12/16/29
Clifton N.J.
M.R.
Approved

1255

PLEASE SEND ALL REMITTANCES FREIGHT BILLS AND

994

PLAINTIFF'S EXHIBIT NO. 26-D.

DU PONT

DU PONT VISCOLOID COMPANY INCORPORATED No. V-32762

ARLINGTON 1-31-30

Pyralin-Viscoloid

TERMS 2%10TH MFR'S NET

SOLD TO THE TRIPLEX SAFETY GLASS CO OF NORTH AMERICA INC

ADDRESS WALNUT & PLEASANT STS CLIFTON, N.J.

SHIPPED TO TRIPLEX SAFETY GLASS CO CLIFTON, N.J.

DESTINATION

P.O. NO. V-12578 CUSTOMER'S ORDER NO. OR DATE 15284 1/10 - 2 DATE SHIPPED 1-30-30 SHIPPED FROM LEON

VIA FRT F.O.B. DEST 2 SALESMAN HOUSE DISCOUNT 6

CASE # 6062

AMOUNT

100 SHS 20/ 36X60 7565 "88" 231 LBS 3 85 SH NET VAPORIZED ✓ 385 00

O.K. Erball

THIS COMPLETES YOUR ORDER.

Feb 52

CM

Vol-115-1930

Acct. No. 50-2
Posted .....
Rec'd. 2/5/30
F.O.B. Clifton NJ
Price O.K. MK
Ext. O.K. M.M.
Approved ...

1256

PLEASE SEND ALL REMITTANCES, FREIGHT BILLS AND OTHER VOUCHERS FOR CREDIT TO DU PONT VISCOLOID CO., INC. TREASURER'S OFFICE, ARLINGTON, NEW JERSEY. INTEREST CHARGED ON ALL BILLS NOT PAID AT MATURITY. NO RETURNS WILL BE ACCEPTED UNLESS AUTHORIZED BY OUR SALES OFFICE.

Plaintiff's Exhibit No. 27

PLAINTIFF'S EXHIBIT NO. 27.

Schedule of Sales.

(Not Printed.)

PLAINTIFF'S EXHIBIT NO. 28.

Losses on Triplex Sales Occasioned by Reduced Prices.

SALES TO DISTRIBUTORS	$ 96,291.81
SALES TO MANUFACTURERS	31,431.32

TRIPLEX SAFETY GLASS COMPANY OF N.A. INC.
CLIFTON, NEW JERSEY

SALES TO DISTRIBUTORS

LOSS OCCASIONED BY REDUCED PRICES

	Actual Sales			Established Price		
	Area	Amount	Average Per Sq. Ft.	Per Sq. Ft.	Difference	Total Loss
September 1928						
Sheet - Sealed	2,648	4,780.50	1.8052	2.00	.1948	515.8[illegible]
October 1928						
Plate - Block Size	3,986	13,287.96	3.3329	3.50	.1671	666.2[illegible]
Sheet - Block Size	471	821.62	1.7429	1.75	.0071	3.3[illegible]
November 1928						
Plate - Block Size	3,246	10,512.28	3.2380	3.50	.262	850.6[illegible]

TRIPLEX SAFETY GLASS COMPANY OF N.A. INC.
CLIFTON, NEW JERSEY

SALES TO DISTRIBUTORS

LOSS OCCASIONED BY REDUCED PRICES

	Actual Sales		Average Per Sq.Ft.	Established Price Per Sq. Ft.	Difference	Total Loss
	Area	Amount				
January 1929						
Plate - Block Size	1,487	4,740.93	3.1878	3.50	.3122	464.30
February 1929						
Plate - Block Size	1,458	4,311.69	2.9566	3.50	.5434	792.47
March 1929						
Plate - Block Size	4,363	10,646.86	2.4398	3.50	1.0602	4,626.45
Sheet - Block Size	1,383	1,954.36	1.4130	1.75	.337	466.10
April 1929						
Plate - Sealed	965	3,782.58	3.9198	4.00	.0802	77.44
Plate - Block Size	2,566	6,322.38	2.4639	3.50	1.0361	2,658.66
Sheet - Block Size	2,660	3,607.20	1.3556	1.75	.3944	1,049.49
May 1929						
Plate - Block Size	5,706	11,552.69	2.0246	3.50	1.4754	8,418.87
Sheet - Block Size	3,204	4,538.71	1.4163	1.75	.3337	1,069.40
June 1929						
Plate - Sealed	116	451.65	3.8645	4.00	.1355	15.84
Plate - Block Size	5,080	12,129.88	2.3875	3.50	1.1125	5,652.03
Sheet - Sealed	78	88.34	1.1224	2.00	.8776	68.89
Sheet - Block Size	1,296	1,801.83	1.3902	1.75	.3598	466.33
July 1929						
Plate - Sealed	184	691.73	3.7585	4.00	.2432	44.78
Plate - Block Size	3,371	7,183.63	2.1309	3.50	1.3691	4,615.41
Sheet - Block Size	713	1,015.92	1.4247	1.75	.3253	231.96

TRIPLEX SAFETY GLASS COMPANY OF N.A. INC.
CLIFTON, NEW JERSEY

SALES TO DISTRIBUTORS

LOSS OCCASIONED BY REDUCED PRICES

	Actual Sales			Established Price		
	Area	Amount	Average Per Sq. Ft.	Per Sq. Ft.	Difference	Total Loss
August 1929						
Plate - Sealed	86	327.82	3.8076	4.00	.1924	16.57
Plate - Block Size	3,999	9,058.14	2.2649	3.50	1.2351	4,939.65
Sheet - Sealed	165	282.81	1.7096	2.00	.2904	48.04
Sheet - Block Size	2,199	3,096.09	1.4079	1.75	.3421	752.31
September 1929						
Plate - Sealed	76	226.45	2.9750	4.00	1.0250	78.02
Plate - Block Size	4,209	8,881.00	2.1099	3.50	1.3901	5,851.15
Sheet - Sealed	17	28.69	1.6870	2.00	.313	5.32
Sheet - Block Size	2,232	3,039.37	1.3612	1.75	.3888	868.13
October 1929						
Plate - Block Size	3,974	8,215.16	2.0669	3.50	1.4331	5,696.04
Sheet - Block Size	2,868	4,337.52	1.5122	1.75	.2378	682.11
November 1929						
Plate - Block Size	1,521	3,364.43	2.2106	3.50	1.2894	1,962.38
Sheet - Block Size	1,809	2,480.54	1.3710	1.75	.3790	685.73
December 1929						
Plate - Block Size	1,817	3,641.25	2.0030	3.50	1.4970	2,721.38
Sheet - Block Size	1,344	1,787.98	1.3296	1.75	.4204	565.33

TRIPLEX SAFETY GLASS COMPANY OF N.A. INC.
CLIFTON, NEW JERSEY

SALES TO DISTRIBUTORS

LOSS OCCASIONED BY REDUCED PRICES

	Actual Sales			Established Price Per Sq. Ft.		
	Area	Amount	Average Per Sq. Ft.		Difference	Total Loss
January 1930						
Plate - Block Size	2,833	4,533.70	2.0296	3.50	1.4704	3,284.52
Sheet - Sealed	116	211.08	1.8105	2.00	.1895	22.09
Sheet - Block Size	1,201	1,545.38	1.2860	1.75	.4640	557.59
February 1930						
Plate - Sealed	5	18.18	3.4115	4.00	.5885	3.14
Plate - Block Size	2,047	3,880.65	1.8955	3.50	1.6045	3,284.85
Sheet - Sealed	47	57.39	1.2209	2.00	.7791	36.62
Sheet - Block Size	1,223	1,183.39	.9674	1.75	.7826	957.36
March 1930						
Plate - Sealed	283	615.05	2.0969	4.00	1.9031	558.21
Plate - Block Size	2,030	3,910.39	1.9258	3.50	1.5742	3,196.38
Sheet - Sealed	313	357.69	1.1425	2.00	.8575	268.46
Sheet - Block Size	2,510	2,356.42	.9386	1.75	.8114	2,036.99
April 1930						
Plate - Sealed	505	930.67	1.8479	4.00	2.1521	1,063.90
Plate - Block Size	6,300	11,664.28	1.8514	3.50	1.6486	10,386.43
Sheet - Sealed	428	519.71	1.2123	2.00	.7877	337.69
Sheet - Block Size	3,669	3,365.09	.9171	1.75	.8329	3,056.09
May 1930						
Plate - Sealed	328	771.39	2.3511	4.00	1.6489	541.00
Plate - Block Size	5,089	9,352.72	1.8376	3.50	1.6624	8,461.06
Sheet - Sealed	154	265.25	1.7165	2.00	.2835	43.81
Sheet - Block Size	741	748.98	1.0098	1.75	.7402	549.03
						96,291.81

SALES TO AUTOMOBILE AND BODY MANUFACTURERS FOR SPANISH [illegible]

Shipped To	Class	Quality	Area Sold	Rate Per Square Foot	Triplex Established Price	Difference	Total Loss
July 1928							
Sundry Mfgrs.	O	Plate	30	4.7548	4.80	.0452	1.36
August 1928							
Motor Products Co.	O	"	30	4.7837	4.80	.0163	.49
September 1928							
Gardner Motor Co.	O	"	11	4.0033	4.80	.7967	8.76
Sundry	O	"	240	4.5121	4.80	.2879	69.10
October 1928							
Fleetwood Body Corp.	S	"	7,410	2.5499	2.65	.1101	815.84
November 1928							
Stutz Motor Car Co.	O	Plate	130	3.9749	4.80	.8251	107.26
Sundry	O	"	34	3.5406	4.80	1.2594	42.82
Cadillac	O	Sheet	36	1.5869	2.40	.8131	29.27
December 1928							
Stutz Motor Car Co.	S	Plate	1,439	2.7904	3.14	.3496	503.07
Studebaker Sales Co.	O	"	5	3.8638	4.80	.9362	4.68
Stutz Motor Car Co.	S	Sheet	5,461	1.7631	1.80	.0369	201.51
Sundry	O	"	36	2.1550	2.40	.2450	8.82
January 1929							
Stutz Motor Car Co.	S	Plate	2,834	2.8755	3.14	.2645	749.59
" " " "	S	Sheet	6,356	1.7619	1.80	.0381	242.24
Motor Products Co.	O	Plate	216	4.7154	4.80	.0846	18.27
February 1929							
Stutz Motor Car Co.	S	Sheet	16,885	1.7808	1.80	.0192	324.19
Sundry	O	Plate	147	4.4108	4.80	.3892	57.21
March 1929							
Stutz Motor Car Co.	S	Plate	5,547	2.9669	3.14	.1731	960.19

Shipped to	Class	Quality	Area Sold	Rate Per Square Foot	Triplex Established Price	Difference	Total Loss
April 1929							
Durant Motors	6	Plate	29	2.997	4.80	1.8030	52.29
May 1929							
Stutz Motor Car Co.	S	Plate	2,379	3.0919	3.14	.0481	114.45
Motor Products Co.	0	"	39	3.5031	4.80	1.2969	50.58
June 1929							
Stutz Motor Car Co.	S	Plate	1,878	2.2494	3.14	.8906	1,672.55
Dietrich	0	"	23	3.3000	4.80	1.5000	34.50
July 1929							
Stutz Motor Car Co.	S	"	3,997	2.8570	3.14	.8630	3,529.35
Chrysler	0	"	9	3.3000	4.80	1.5000	13.50
Auburn	0	"	77	2.25	4.80	2.5500	196.35
August 1929							
Stutz Motor Car Co.	S	"	2,230	2.2594	3.14	.3806	1,963.74
Chrysler	0	"	27	3.60	4.80	1.2000	32.40
September 1929							
Stutz Motor Car Co.	S	"	365	2.2724	3.14	.8676	332.29
Chrysler	0	"	18	3.60	4.80	1.2000	21.60
Franklin	0	"	28	3.30	4.80	1.5000	42.00
Weyman American Body Co.	0	"	4	3.60	4.80	1.2000	4.80
October 1929							
Stutz Motor Car Co.	S	"	421	2.3516	3.14	.7884	331.92
Fisher Body Co.	0	"	164	3.30	4.80	1.50	246.00
Marmon	0	"	205	1.80	4.80	3.00	615.00
Weyman American Body Co.	0	"	4	3.60	4.80	1.20	4.80
Brunn	0	"	130	3.30	4.80	1.50	195.00
Sundry	0	"	23	3.30	4.80	1.50	34.50
November 1929							
Marmon	0	Plate	69	1.8922	4.80	2.9078	200.64
Pierce Arrow	0	"	7	3.2992	4.80	1.5008	10.51
Le Baron - Detroit	0	"	5	3.7492	4.80	1.0508	5.25
J. B. Judkins	0	"	25	3.3003	4.80	1.4997	37.49
N. Y. N. H. & H. R. R.	0	Sheet	684	1.50	2.40	.90	615.60

1263

1001

1001

1264

1002

Shipped To	Glass	Quality	Area Sold	Rate Per Square Foot	Triplex Established Price	Difference	Total Loss
December 1929							
Fisher Body Co.	0	Plate	9	3.30	4.80	1.50	13.50
N. Y. N. H. & H. R. R.	0	Sheet	9	1.50	2.40	.90	8.10
January 1930							
Fisher Body Co.	0	Plate	280	3.30	4.80	1.50	420.00
Chrysler	0	"	45	3.30	4.80	1.50	67.50
Dietrich	0	"	8	3.30	4.80	1.50	12.00
Locke	0	"	2	3.30	4.80	1.50	3.00
Pullman Car Co.	0	"	4	1.75	4.80	3.05	12.20
February 1930							
Fisher Body Co.	0	Plate	7	3.8775	4.80	1.9225	13.45
N. Y. N. H. & H. R. R. Co.	0	Sheet	41	1.10	2.40	1.30	53.30
March 1930							
Fisher Body Co.	0	Plate	113	3.1510	4.80	1.6490	186.34
Duesenberg Inc.	0	"	285	1.6762	4.80	3.1238	890.28
Baltimore Coach Co.	0	"	6	1.75	4.80	3.05	18.30
N. Y. N. H. & H. R. R.	0	"	86	1.75	4.80	3.05	262.30
Weyman American Body Co.	0	"	147	1.50	4.80	3.30	485.10
Sundry	0	"	8	3.83	4.80	.97	7.76
United Railways & Elec. Co.	0	Sheet	116	1.85	2.40	1.15	133.40
Baltimore Coach Co.	0	"	4	1.25	2.40	1.15	4.60
N. Y. N. H. & H. R. R. Co.	0	"	58	1.05	2.40	1.35	78.30
Sundry	0	"	132	1.4649	2.40	.9351	123.45
April 1930							
Public Service Transp. Co.	0	Plate	7	1.80	4.80	3.00	21.00
Weyman American Body Co.	0	"	746	1.50	4.80	3.30	2,461.80
N. Y. N. H. & H. R. R.	0	"	117	1.75	4.80	3.05	356.85
Pullman Car Co.	0	"	340	1.75	4.80	3.05	1,037.00
Franklin	0	"	14	2.80	4.80	2.00	28.40
Great Lakes Aircraft Co.	0	"	687	1.8704	4.80	2.9296	2,012.64
Illinois Central R.R. Co.	0	"	21	1.85	4.80	2.95	61.95
Public Service Transp. Co.	0	Sheet	99	1.40	2.40	1.00	99.00
Sundry	0	"	166	1.50	2.40	.90	151.20
May 1930							
Public Service Transp. Co.	0	Plate	2,494	1.7821	4.80	3.0179	7,526.54
Duesenberg Motors Inc.	0	"	50	1.6868	4.80	3.1132	155.66
Illinois Central R.R.	0	"	50	1.75	4.80	3.05	152.50
Fifth Avenue Coach Co.	0	"	21	1.75	4.80	3.05	64.05
							$1,451.22

PLAINTIFF'S EXHIBIT NO. 29.

Supplemental Bill of Complaint.

(Not Printed.)

PLAINTIFF'S EXHIBIT NO. 29-A.

Answer to Supplemental Bill of Complaint.

(Not Printed.)

PLAINTIFF'S EXHIBIT NO. 29-B.

Order as to Supplemental Bill of Complaint.

(Not Printed.)

PLAINTIFF'S EXHIBIT NO. 29-C.

Interlocutory Decree on Supplemental Bill of Complaint.

(Not Printed.)

POLISHED PLATE CUTTING LOSS, ANALYSIS by CUSTOMERS ORDERS, CALCULATED from SEVERAL ORDERS for period 1928, 1929 and 1930.

	Customer	Order No.	Warehouse	Date of order	Final shipping date	Material Quantity	Duplate ordered Description	Duplate ordered Pattern No.	Plates shipped quantity	Size shipped to customer
1B	Studebaker Corp.	E 229	Chicago	3/27/29	6/18/29	3 000	Windshield	S- 1	3 000	13-3/8 x 41-11/16
2B	Motor Products Corp.	D 244	Detroit	4/ 3/29	7/ 2/29	8 802	do	A-6-3798	3 899	12-13/32 x 41
3B	Studebaker Corp.	E 170	Chicago	12/13/28	2/10/29	10 000	do	246294	10 000	13-3/8 x 41-11/16
4B		E 216	do	3/11/29	6/10/29	5 000	do	246294	5 000	13-3/8 x 41-11/16
5B	Fisher Body Corp.	N/S 468	General office	8/ 7/29	9/ 4/29	3 000	Front door	13786	3 000	16-3/4 x 24-1/2
6B		N/S 458	do	8/ 7/29	9/16/29	3 500	Front door	13783	3 550	16-23/32 x 30-3/8
7B	Motor Products Corp.	D 239	Detroit	3/29/29	4/17/29	5 000	Windshield	A6-3798	5 000	12-13/32 x 41
8B	Fisher Body Corp.	GO 1964	General office	7/ 5/28	8/31/28	4 250	Front door	A-13783	4 250	16-23/32 x 30-3/8
9B		GO 1965	do	7/ 5/28	8/28/28	3 350	Rear door	A-13786	3 350	16-3/4 x 24-1/2
10B		GO 2310	do	8/14/28	9/25/28	4 400	do	A-13786	4 400	16-3/4 x 24-1/2
11B		GO 2314	do	8/14/28	10/ 3/28	4 400	Front door	A-13946	4 400	17-7/32 x 31-3/8
12B		GO 2317	do	8/14/28	9/26/28	4 700	do	A-13783	4 700	16-23/32 x 30-3/8
13B		GO 2326	do	8/14/28	9/25/28	3 900	Rear door	A-13949	3 900	17-5/16 x 23-7/32
14B	Motor Products Corp.	D 18	Detroit	1/21/30	1/28/30	3 200	Windshield	A6-4090	3 200	12-31/64 x 42-3/8
15B		D 14	do	1/10/30	1/28/30	3 500	do	A6-4090	3 500	12-31/64 x 42-3/8
16B	Ainsworth Mfg. Corp.	D 12	do	1/10/30	3/ 7/30	Blanket	do	G- 353	1 700	11-7/8 x 43-3/8
17B		D 11	do	1/10/30	3/15/30	do	do	G- 352	391	11-7/16 x 42-57/64
18B	Seaman Body Corp.	N/S 498	General office	8/10/29	10/8/29	3 500	Rear quarter	37735	3 500	15 x 19-15/16
19B	Studebaker Corp.	E 153	Chicago	10/23/28	1/16/29	5 000	Windshield	249430	5 000	13-3/8 x 42-15/16
20B	Fisher Body Corp.	GO 2942	General office	10/5/28	11/ 6/28	4 500	Back part	A-7011	4 500	9-1/2 x 30-7/8
21B		GO 2624	do	9/10/28	10/22/28	3 500	do	A-7011	3 500	9-1/2 x 30-7/8
22B	Seaman Body Corp.	N/S 497	do	8/10/29	10/12/29	2 300	Rear window	37731	2 300	10-53/64 x 30
23B		N/S 507	do	8/10/29	10/19/29	2 300	Windshield	38095	2 300	12 x 44-3/4
24B	Fisher Body Corp.	N/S 530	do	8/17/29	9/25/29	1 300	do	28230	1 300	16-3/4 x 25-3/8
25B	Studebaker Corp.	E 265	Chicago	7/12/29	1/31/30	4 000	do	246294	4 000	13-3/8 x 41-11/16
26B		E 270	do	7/13/29	1/31/30	5 500	do	242371	5 500	11-9/16 x 29-15/32
27B		E 276	do	7/13/29	1/22/30	3 600	do	242364	3 600	15-3/4 x 29-1/2

† In Red in Original Exhibit.

SEVERAL ORDERS for period 1928, 1929 and 1930.

Ordered Pattern No.	Plates shipped quantity	Size shipped to customer	Bracket size billed to customer	Sq.ft. area per plate	Quantity pol. plate glass used Plates	Actual size pol.plate taken from stock	Bracket size pol.plate billed Duplate	Sq. ft. area per plate actually used	Plate glass footage actually used	Cutting loss per Plate	Cutting loss Total
S- 1	3 000	13-3/8 x 41-11/16	14 x 42	4.0833	2 500	14 x 43	14 x 44	4.1806	10 452	.0973	243
					3 300	14 x 44	14 x 44	4.2778	14 117	.1945	641
A-6-3798	3 899	12-13/32 x 41	14 x 42	4.0833	10 796	13 x 42	14 x 42	3.7917	40 935	.2918†	3 148†
246294	10 000	13-3/8 x 41-11/16	14 x 42	4.0833	3 450	14 x 44	14 x 44	4.2778	14 758	.1945	671
					20 960	14 x 43	14 x 44	4.1806	87 625	.0973	2 039
246294	5 000	13-3/8 x 41-11/16	14 x 42	4.0833	1 992	14 x 44	14 x 44	4.2778	8 521	.1945	387
					16 800	14 x 43	14 x 44	4.1806	70 236	.0973	1 635
13786	3 000	16-3/4 x 24-1/2	18 x 26	3.25	112	17 x 25-1/2	18 x 26	3.0104	337	.2396†	27†
					4 600	17-1/4 x 25	18 x 26	2.9948	13 776	.2552†	1 174†
					500	17-1/2 x 25	18 x 26	3.0382	1 519	.2118†	106†
					122	17-1/2 x 25-1/2	18 x 26	3.0989	378	.1511†	18†
13783	3 550	16-23/32 x 30-3/8	18 x 32	4.0	68	17-1/2 x 31	18 x 32	3.7673	256	.2327†	16†
					7 600	17-1/4 x 31	18 x 32	3.7135	28 223	.2865†	2 177†
A6-3798	5 000	12-13/32 x 41	14 x 42	4.0833	8 000	13 x 42	14 x 42	3.7917	30 334	.2916†	2 333†
A-13783	4 250	16-23/32 x 30-3/8	18 x 32	4.	18 014	18 x 32	18 x 32	4.0	72 056	-	-
A-13786	3 350	16-3/4 x 24-1/2	18 x 26	3.25	12 151	18 x 26	18 x 26	3.25	39 491	-	-
A-13786	4 400	16-3/4 x 24-1/2	18 x 26	3.25	18 851	18 x 26	18 x 26	3.25	61 266	-	-
A-13946	4 400	17-7/32 x 31-3/8	18 x 32	4.0	21 303	18 x 32	18 x 32	4.0	85 212	-	-
A-13783	4 700	16-23/32 x 30-3/8	18 x 32	4.0	22 597	18 x 32	18 x 32	4.0	90 388	-	-
A-13949	3 900	17-5/16 x 23-7/32	18 x 24	3.0	22 440	18 x 24	18 x 24	3.0	67 320	-	-
A6-4090	3 200	12-31/64 x 42-3/8	14 x 44	4.2778	7 600	14 x 44	14 x 44	4.2778	32 511	-	-
A6-4090	3 500	12-31/64 x 42-3/8	14 x 44	4.2778	7 000	14 x 44	14 x 44	4.2778	29 945	-	-
G- 353	1 700	11-7/8 x 43-3/8	12 x 44	3.6667	200	12 x 44	12 x 44	3.6667	734	-	-
					2 864	14 x 44	14 x 44	4.2778	12 252	.6111	1 750
					474	14 x 46	14 x 46	4.4722	2 120	.8055	382
G- 352	391	11-7/16 x 42-57/64	12 x 44	3.6667	712	12 x 44	12 x 44	3.6667	2 611	-	-
37735	3 500	15 x 19-15/16	16 x 20	2.2222	4 400	16 x 21	16 x 22	2.3333	10 267	.1111	489
249430	5 000	13-3/8 x 42-15/16	14 x 44	4.2778	12 570	14 x 44	14 x 44	4.2778	53 772	-	-
A-7011	4 500	9-1/2 x 30-7/8	10 x 32	2.2222	6 800	11 x 32	12 x 32	2.4444	16 622	.2222	1 511
A-7011	3 500	9-1/2 x 30-7/8	10 x 32	2.2222	2 211	11 x 32	12 x 32	2.4444	5 405	.2222	491
37731	2 300	10-53/64 x 30	12 x 30	2.5	800	12 x 31	12 x 32	2.5833	2 067	.0833	67
					1 700	I2 x 32	12 x 32	2.6667	4 533	.1667	283
38095	2 300	12 x 44-3/4	12 x 46	3.8333	3 200	13 x 46	14 x 46	4.1528	13 289	.3195	1 022
28230	1 300	16-3/4 x 25-3/8	18 x 26	3.25			No tickets			-	-
246294	4 000	13-3/8 x 41-11/16	14 x 42	4.0833	1 700	14 x 43	14 x 44	4.1806	7 107	.0973	165
					6 332	14 x 44	14 x 44	4.2778	27 087	.1945	1 231
242371	5 500	11-9/16 x 29-15/32	12 x 30	2.5	1 950	13 x 31	14 x 32	2.7986	5 457	.2986	582
					5 300	14 x 32	14 x 32	3.1111	16 489	.6111	3 239
242364	3 600	15-3/4 x 29-1/2	16 x 30	3.3333	2 132	16 x 30	16 x 30	3.3333	7 107	-	-

POLISHED PLATE CUTTING LOSS, ANALYSIS by CUSTOMERS ORDERS, CALCULATED from SEVERAL ORDERS for period 1928, 1929 and 1930.

	Customer	Order No.	Warehouse	Date of order	Final shipping date	Material quantity	Duplate ordered Description	Pattern No.	Plates shipped quantity	Size shipped to customer
27B	Studebaker Corporation									
28B	Motor Products Corp.	D 493	Detroit	12/31/29	1/9/30	2 500	Windshield	A6-4090	2 500	12-31/64 x 42-3/8
29B	Fisher Body Corp.	N/S 532	General office	8/17/29	9/21/29	1 000		28227	1 000	16-11/16 x 33
30B	Seaman Body Corp.	N/S 650	do	9/13/29	1/ 9/30	7 400		37733	7 400	15-1/16 x 23-1/4
2A	Fisher Body Co.	1976	do	7/ 5/28	8/23/28	750	Rear quarter	A-13955	750	14-5/8 x 17-9/32
1A		1601	do	5/23/28	8/17/28	1 050	do	A-13952	1 050	17-9/32 x 21-5/8
3A		1974	do	7/ 5/28	8/28/28	3 550	Rear doors	A-13949	3 550	17-5/16 x 23-7/32
4A		1968	do	7/ 5/28	8/25/28	1 600	Rear quarters	A-14406	1 600	16-5/8 x 19-3/8
5A		1977	do	7/ 5/28	8/25/28	400	do	A-14118	400	17-9/32 x 19-1/32
6A		1973	do	7/ 5/28	9/ 6/28	4 050	Front doors	A-13946	4 050	17-7/32 x 31-3/8
7A	Pierce Arrow	520	Buffalo	12/5/28	5/27/29	600	Division	725867	600	18-3/8 x 51-17/32
8A	Studebaker	E 155	Chicago	10/23/28	1/10/29	8 000	Windshields	246294	8 000	13-3/8 x 41-11/16
9A	Fisher Body Co.	1971	General office	7/ 5/28	8/25/28	500	Front doors	96925	500	16-1/2 x 27-3/4
10A		2966	do	10/ 5/28	1/ 6/29	1 000	do	96925	1 000	do
11A	Motor Products Corp.	D 110	Detroit	12/21/28	1/21/29	10 000	Windshields	A6-3798	10 000	12-13/32 x 41
12A		D 160	do	2/ 8/29	2/25/29	3 500	do	A6-3798	3 500	12-13/32 x 41
13A	Ainsworth Mfg. Corp.	D 361	do	8/ 1/29	8/23/29	500	do	G-342	585	11-21/32 x 44-1/8
14A	Motor Products Corp.	D 364	do	8/ 7/29	8/26/29	4 200	do	A6-3798	4 200	12-13/32 x 41
15A	Studebaker Corp.	E 231	Chicago	4/ 8/29	6/25/29	1 000	do	246294	1 000	13-3/8 x 41-11/16
16A	Joseph N. Smith & Co.	D 289	Detroit	5/10/29	5/31/29	775	do	6120-1	775	12-1/16 x 42-5/16
17A	Ainsworth Mfg. Corp.	D 479	do	12/ 6/29	12/12/29	500	do	G-353	500	11-7/8 x 43-3/8
18A	Fisher Body Corp.	N/S 482	General office	8/ 8/29	8/27/29	600	Rear door	A-28230	600	16-3/4 x 25-3/8
19A	Ainsworth Mfg. Corp.	D 490	Detroit	12/23/29	12/28/29	600	Windshield	G-353	600	11-7/8 x 43-3/8
20A	Fisher Body Corp.	N/S 534	General office	8/10/29	9/21/29	750	Rear quarter	28234	750	16-13/32 x 23-3/8

(In Ran on Original Exhibit

...S for period 1928, 1929 and 1930.

...d... No.	Plates shipped quantity	Size shipped to customer	Bracket size billed to customer	Sq.ft. area per plate	Quantity pol. plate glass used Plates	Actual size pol.plate taken from stock	Bracket size pol.plate billed Duplate	Sq. ft. area per plate actually used	Plate glass footage actually used	Cutting loss per Plate	Cutting loss Total
					1 800	17 x 30	18 x 30	3.5417	6 375	.2084	375
					240	17 x 31	18 x 32	3.6597	878	.3264	78
					180	18 x 30	18 x 30	3.75	675	.4167	75
					1 280	18 x 32	18 x 32	4.0	5 120	.6667	853
...90	2 500	12-31/64 x 42-3/8	14 x 44	4.2778	3 500	14 x 44	14 x 44	4.2778	14 972	-	-
...87	1 000	16-11/16 x 33	18 x 34	4.25	150	17-1/4 x 34	18 x 34	4.0729	611	.1771†	26†
...33	7 400	15-1/16 x 23-1/4	16 x 24	2.6667	3 100	16 x 24	16 x 24	2.6667	8 267	-	-
					12300	15-3/4 x 24	16 x 24	2.625	32 287	.0417†	513†
...55	750	14-5/8 x 17-9/32	16 x 18	2.0	2 040	16 x 18	16 x 18	2.0	4 080	-	-
...52	1 050	17-9/32 x 21-5/8	18 x 22	2.750	1 419	18 x 22	18 x 22	2.750	3 902	-	-
					1 921	18 x 22-1/2	18 x 24	2.8125	5.403	.0625	120
...49	3 550	17-5/16 x 23-7/32	18 x 24	3.0	14 635	18 x 24	18 x 24	3.0	43 905	-	-
					326	18 x 32	18 x 32	4.0	1 304	1.0	326
...06	1 600	16-5/8 x 19-3/8	18 x 20	2.5	6 959	18 x 20	18 x 20	2.5	17 397	-	-
...18	400	17-9/32 x 19-1/32	18 x 20	2.5	1 784	18 x 20	18 x 20	2.5	4 460	-	-
...46	4 050	17-7/32 x 31-3/8	18 x 32	4.0	15 955	18 x 32	18 x 32	4.0	63 820	-	-
...67	600	18-3/8 x 51-17/32	20 x 52	7.2222	1 509	20 x 53	20 x 5-	7.3611	11 108	.1389	210
...94	8 000	13-3/8 x 41-11/16	14 x 42	4.0833	22 380	14 x 43	14 x 44	4.1806	93 562	.0973	2 178
					107	14 x 44	14 x 44	4.2778	458	.1945	21
...25	500	16-1/2 x 27-3/4	18 x 28	3.5	2 104	17 x 28-1/2	18 x 30	3.3646	7 079	.1354†	285†
					556	18 x 28-1/2	18 x 30	3.5625	1.981	.0625	35
...25	1 000	do	18 x 28	3.5	2 876	17 x 28-1/2	18 x 30	3.3646	9 677	.1354†	389†
...98	10 000	12-13/32 x 41	14 x 42	4.0833	28 663	13 x 42	14 x 42	3.7917	108 681	.2916†	8 358†
					368	13 x 45	14 x 46	4.0625	1 495	.0208†	8†
...98	3 500	12-13/32 x 41	14 x 42	4.0833	8 418	13 x 42	14 x 42	3.7917	31 919	.2916†	2 455†
...42	585	11-21/32 x 44-1/8	12 x 46	3.8333	92	12 x 46	12 x 46	3.8333	353	-	-
					1 050	12-1/2 x 46	14 x 46	3.9931	4 193	.1598	168
					50	13 x 45	14 x 46	4.0625	203	.2292	11
...98	4 200	12-13/32 x 41	14 x 42	4.0833	8 350	13 x 42	14 x 42	3.7917	31 661	.2916†	2 435†
...94	1 000	13-3/8 x 41-11/16	14 x 42	4.0833	2 000	14 x 43	14 x 44	4.1806	8 361	.0973	195
...41	775	12-1/16 x 42-5/16	14 x 44	4.2778	1 550	13 x 43	14 x 44	3.8819	6 017	.3959†	614†
...53	500	11-7/8 x 43-3/8	12 x 44	3.6667	1 000	14 x 44	14 x 44	4.2778	4 278	.6111	611
...30	600	16-3/4 x 25-3/8	18 x 26	3.25	1 200	17-1/4 x 26	18 x 26	3.1145	3 737	.1355†	163†
...53	600	11-7/8 x 43-3/8	12 x 44	3.6667	1 200	14 x 44	14 x 44	4.2778	5 133	.6111	733
...34	750	16-13/32 x 23-3/8	18 x 24	3.	500	17 x 24	18 x 24	2.8333	1 417	.1667†	83†
					370	17-1/4 x 26	18 x 26	3.1145	1 152	.1145	42
					1 000	18 x 24	18 x 24	3.0	3 000	-	-
											1267

POLISHED PLATE CUTTING LOSS, ANALYSIS by CUSTOMERS ORDERS, CALCULATED from SEVERAL ORDERS for period 1928, 1929 and 1930.

	Customer	Order No.	Warehouse	Date of order	Final shipping date	Material quantity	Duplate ordered Description	Duplate ordered Pattern No.	Plates shipped quantity	Size shipped to customer
21A	Studebaker Corp.	E 266	Chicago	7/12/29	10/14/29	1 000	Windshield	244430	1 000	13-3/8 x 42-15/16
22A	Motor Products Corp.	D 403	Detroit	10/ 2/29	10/22/29	3 555	do	A6-3798	3,555	12-13/32 x 41
23A	Ainsworth Mfg. Corp.	D 9	do	1/9/30	1/15/30	500	do	G -352	500	11-7/16 x 42-57/64
24A	Motor Products Corp.	D 5	do	1/6/30	1/17/30	700	do	A6-4090	700	12-31/64 x 42-3/8
25A	Ainsworth Mfg. Corp.	D 10	do	1/9/30	1/15/30	1 000		G-353-19	1 000	11-7/8 x 43-3/8
31B	Studebaker Corp.	E 273	Chicago	7/13/29	1/22/30	9 100		242365	9 100	15-23/32 x 25-1/2
32B	Amesburg Brass & Fdry.Co.	GO 3171	General office	10/23/28	12/22/28	2 025	do	6563	2 025	11-3/4 x 42-7/8
33B	Seaman Body Corp.	N/S 504	do	8/10/29	10/12/29	3 500		37732	3 500	14-7/8 x 25-9/16
51B	Studebaker Corp.	E 364	Chicago	4/ 7/30	-	3 500	do	251168	3 500	12-53/64 x 43-13/32
52B	Motor Products Corp.	D 340	Detroit	7/ 6/29	8/16/29	4 000	do	A6-3798	4 000	12-13/32 x 41
53B	Seaman Body Corp.	N/S 654	Milwaukee	9/13/29	1/24/30	3 950	do	38095	3 950	12 x 44-3/4
54B	Seaman Body Corp.	N/S 648	do	9/13/29	12/ 6/29	3 900		37731	3 902	10-53/64 x 30
55B	Fisher Body Corp.	GO 2201	Detroit	8/ 3/28	8/28/28	3 000	Back light	A-7011	3 000	9-1/2 x 30-7/8
56B	Fisher Body Corp.	GO 2325	do	8/14/28	9/ 4/28	1 000	Rear quarters	A-13955	1 000	14-5/8 x 17-9/32
57B	Fisher Body Corp.	GO 2323	do	8/14/28	9/30/28	2 300	Windshields	A-13706	2 300	15-1/8 x 45-17/32
58B	Fisher Body Corp.	GO 2315	do	8/14/28	9/30/28	2 500	Rear quarters	A-14106	2 500	16-5/8 x 19-3/8
59B	Motor Products Corp.	D 38	do	2/ 7/30	3/13/30	5 300		A6-4090	5 300	12-31/64 x 42-3/8
60B	Pierce Arrow Motor Car Co.	48	Buffalo	1/21/30	5/10/30	2 960	Front door	124558	2 959	16-1/4 x 31-23/32
61B		51	do	1/21/30	5/10/30	3 250	Rear door	124559	3 250	16-15/32 x 24-5/32
62B	Motor Products Corp.	D 56	Detroit	3/ 7/30	4/30/30	5 000		A6-4090	5 000	12-31/64 x 42-3/8
63B	Fisher Body Corp.	S 472	do	8/ 7/29	9/21/29	2 300	do	19864	2 300	16-9/16 x 25-3/8

†In Ran on Original Exhibit.

RAL ORDERS for period 1928, 1929 and 1930.

ce ordered Pattern No.	Plates shipped quantity	Size shipped to customer	Bracket size billed to customer	Sq.ft. area per plate	Quantity pol. plate glass used Plates	Actual size pol.plate taken from stock	Bracket size pol.plate billed Duplate	Sq. ft. area per plate actually used	Plate glass footage actually used	Cutting loss per Plate	Cutting loss Total
244430	1 000	13-3/8 x 42-15/16	14 x 44	4.2778	4 420	14 x 44	14 x 44	4.2778	18 908	-	-
					1 560	14 x 43-1/2	14 x 44	4.2291	6 597	.0487†	76†
A6-3798	3 555	12-13/32 x 41	14 x 42	4.0833	7 100	13 x 42	14 x 42	3.7917	26 921	.2916†	2 070†
G-352	500	11-7/16 x 42-57/64	12 x 44	3.6667	1 000	14 x 44	14 x 44	4.2778	4 278	.6111	611
A6-4090	700	12-31/64 x 42-3/8	14 x 44	4.2778	1 800	14 x 44	14 x 44	4.2778	7 700	-	-
G-353-19	1 000	11-7/8 x 43-3/8	12 x 44	3.6667	2 000	14 x 44	14 x 44	4.2778	8 556	.6111	1 222
242365	9 100	15-23/32 x 25-1/2	16 x 26	2.8889	7 060	16 x 26	16 x 26	2.8889	20 396	-	-
					6 492	16 x 26-1/2	16 x 28	2.9444	19 115	.0555	360
					500	17 x 26	18 x26	3.0694	1 535	.1805	90
					3 158	18 x 28	18 x 28	3.5	11 053	.6111	1 930
					800	16-1/2 x 26	18 x 26	2.9792	2 383	.0903	72
					600	16-1/4 x 26	18 x 26	2.9340	1 760	.0451	27
6563	2 025	11-3/4 x 42-7/8	12 x 44	3.6667	3 264	12 x 44	12 x 44	3.6667	11 968	-	-
					136	13 x 44	14 x 44	3.9722	540	.3055	42
37732	3 500	14-7/8 x 25-9/16	16 x 26	2.8889	2 900	16 x 26-1/2	16 x 28	2.9444	8 539	.0555	161
251168	3 500	12-53/64 x 43-13/32	14 x 44	4.2778	3 575	14 x 44	14 x 44	4.2778	15 293	-	-
A6-3798	4 000	12-13/32 x 41	14 x 42	4.0833	700	13 x 42	14 x 42	3.7917	2 654	.2916†	204†
38095	3 950	12 x 44-3/4	12 x 46	3.8333	5 050	12-3/4 x 45-1/2	14 x 46	4.0175	20 288	.1842	930
					2 750	13 x 46	14 x 46	4.1528	11 420	.3195	879
					176	14 x 46	14 x 46	4.4722	787	.6389	112
37731	3 902	10-53/64 x 30	12 x 30	2.5	3 430	12 x 31	12 x 32	2.5833	8 861	.0833	286
					3 196	12 x 32	12 x 32	2.6667	8 523	.1667	533
A-7011	3 000	9-1/2 x 30-7/8	10 x 32	2.2222	3 772	11 x 32	12 x 32	2.4444	9 220	.2222	838
re A-13955	1 000	14-5/8 x 17-9/32	16 x 18	2.	1 849	16 x 18	16 x 18	2.	3 698	-	-
A-13706	2 300	15-1/8 x 45-17/32	16 x 46	5.1111	8 666	16 x 46	16 x 46	5.1111	44 293	-	-
re A-14106	2 500	16-5/8 x 19-3/8	18 x 20	2.5	10 915	18 x 20	18 x 20	2.5	27 287	-	-
A6-4090	5 300	12-31/64 x 42-3/8	14 x 44	4.2778	5 542	14 x 44	14 x 44	4.2778	23 708	-	-
124558	2 959	16-1/4 x 31-23/32	18 x 32	4.	2 778	18 x 34	18 x 34	4.25	11 806	.25	694
					2 120	18 x 32	18 x 32	4.	8 480	-	-
124559	3 250	16-15/32 x 24-5/32	18 x 26	3.25	4 412	18 x 26	18 x 26	3.25	14 339	-	-
A6-4090	5 000	12-31/64 x 42-3/8	14 x 44	4.2778	2 350	14 x 44	14 x 44	4.2778	10 053	-	-
19864	2 300	16-9/16 x 25-3/8	18 x 26	3.25	2 900	17-1/4 x 26	18 x 26	3.1146	9 032	.1354†	393†
											1268

POLISHED PLATE CUTTING LOSS, ANALYSIS by CUSTOMERS ORDERS, CALCULATED from SEVERAL ORDERS for period 1928, 1929 and 193

	Customer	Order No.	Warehouse	Date of order	Final shipping date	Material quantity	Duplate ordered Description	Pattern No.	Plates shipped quantity	Size shipped customer
4B	Fisher Body Corp.	S-471	Detroit	8/ 7/29	9/21/29	1 800	Back light	16939	1 800	9-1/2 x 30-
5B		S-467	do	8/ 7/29	10/ 8/29	1 700	Windshield	18723	1 700	14-1/4 x 45-
6B		S-463	do	8/ 7/29	9/16/29	1 500	do	19045	1 500	15-3/16 x 4
7B	Seaman Body Corp.	S-652	General office	9/13/29	2/27/30	6 000		37735	6 000	15 x 19-15/
8B		S-649	do	9/13/29	2/26/30	6 000		37732	6 000	14-7/8 x 25
4B	Pierce Arrow Motor Car Co.	530	Buffalo	9/ 3/29	5/10/30	3 423	Front door	124557	3 423	16-3/16 x 2
5B		529	do	9/ 3/29	1/15/30	3 500	Rear door	124559	3 553	16-15/32 x 2
6B		528	do	9/ 3/29	2/15/30	2 500	Back light	125097	2 500	11-3/16 x 2
7B		527	do	8/30/29	5/10/30	3 263	Rear quarter	125157	3 063	16-3/16 x 2
8B	Studebaker Corp.	E-305	Chicago	11/20/29	3/13/30	1 950	do	242369	1 950	15-3/4 x 17-
9B		E-300	do	11/20/29	3/13/30	1 300	Front door	242364	1 300	15-3/4 x 2
0B	Seaman Body Corp.	N/S- 30	General office	1/ 9/30	2/26/30	1 378		37731	1 378	10-53/64 x
1B		N/S- 32	do	1/ 9/30	3/21/30	1 623		37734	1 623	14-7/8 x 3
2B		N/S- 38	do	1/ 9/30	2/26/30	1 392	Windshield	38095	1 392	12 x 44-3/4
3B		N/S- 31	do	1/ 9/30	3/15/30	2 070		37733	2 070	15-1/16 x 2
4B	Studebaker Corp.	E-284	Chicago	8/26/29	2/ 4/30	1 000	do	244430	1 000	13-3/8 x 42-

† In Red on Original Exhibit.

ERS for period 1928, 1929 and 1930.

ered tiem No.	Plates shipped quantity	Size shipped to customer	Bracket size billed to customer	Sq.ft. area per plate	Quantity pol. plate glass used Plates	Actual size pol.plate taken from stock	Bracket size pol.plate billed Duplate	Sq. ft. area per plate actually used	Plate glass footage actually used	Cutting loss per Plate	Cutting loss Total
16939	1 800	9-1/2 x 30-7/8	10 x 32	2.2222	550	12 x 31	12 x 32	2.5833	1 421	.3611	199
					500	12 x 32	12 x 32	2.6667	1 333	.4445	222
18723	1 700	14-1/4 x 45-1/32	16 x 46	5.1111	1 902	15 x 46	16 x 46	4.7917	9 114	.3194†	607†
					1 200	14-3/4 x 45-3/4	16 x 46	4.6862	5.623	.4249†	510†
19045	1 500	15-3/16 x 45-11/16	16 x 46	5.111	1 100	16 x 47	16 x 48	5.2222	5 744	.1111	122
					500	16 x 46-1/2	16 x 48	5.1667	2 583	.0556	28
					800	15-3/4 x 46-3/4	16 x 48	5.1165	4 093	.0054	4
37735	6 000	15 x 19-15/16	16 x 20	2.2222	500	16 x 21	16 x 22	2.3333	1 167	.1111	56
					4 263	16 x 22	16 x 22	2.4444	10 420	.2222	947
37732	6 000	14-7/8 x 25-9/16	16 x 26	2.8889	9 350	15-1/2 x 26-1/2	16 x 28	2.8524	26 670	.0365†	341†
					2 914	16 x 28	16 x 28	3.1111	9 066	.2222	647
					2 180	16 x 26-1/2	16 x 28	2.9444	6 419	.0555	121
124557	3 423	16-3/16 x 24-23/32	18 x 26	3.25	70	17-1/4 x 26	18 x 26	3.1146	218	.1354†	9†
					2 150	17 x 26	18 x 26	3.0694	6 599	.1806†	388†
					2 850	18 x 26	18 x 26	3.25	9 262	-	
124559	3 553	16-15/32 x 24-5/32	18 x 26	3.25	750	17 x 25	18 x 26	2.9514	2 214	.2986†	224†
					800	18 x 25	18 x 26	3.125	2 500	.125†	100†
					3 006	18 x 26	18 x 26	3.25	9 769	-	
125097	2 500	11-3/16 x 29-3/8	12 x 30	2.5	40	23 x 59	24 x 60	9.4236	377	.5764†	23†
					100	24 x 32	24 x 32	5.3333	533	.3333	33
					2 254	12 x 31	12 x 32	2.5833	5 823	.0833	188
					2 200	12 x 30	12 x 30	2.5	5 500	-	-
					8	14 x 32	14 x 32	3.1111	25	.6111	5
					100	12 x 32	12 x 32	2.6667	267	.1667	16
125157	3 063	16-3/16 x 20-5/32	18 x 22	2.75	20	25 x 35	26 x 36	6.0764	122	.764†	1..
					10	21 x 54	22 x 54	7.875	79	.75†	4†
					2 000	16-3/4 x 20-3/4	18 x 22	2.4136	4 827	.3364†	673†
					490	17 x 21	18 x 22	2.4792	1 215	.2708†	133†
					3 732	18 x 22	18 x 22	2.75	10 263	-	
242369	1 950	15-3/4 x 17-15/16	16 x 18	2.	4 200	18 x 20	18 x 20	2.5	10 500	.5	2 100
242364	1 300	15-3/4 x 29-1/2	16 x 30	3.3333	2 504	18 x 32	18 x 32	4.	10 016	.6667	1 669
37731	1 378	10-53/64 x 30	12 x 30	2.5	1 634	12 x 32	12 x 32	2.6667	4 357	.1667	272
37734	1 623	14-7/8 x 31-15/16	16 x 32	3.5556	3 028	16 x 34	16 x 34	3.7778	11 439	.2222	673
38095	1 392	12 x 44-3/4	12 x 46	3.8333	2 602	14 x 46	14 x 46	4.4722	11 637	.6389	1 662
37733	2 070	15-1/16 x 23-1/4	16 x 24	2.6667	4 222	16 x 24	16 x 24	2.6667	11 259	-	-
244430	1 000	13-3/8 x 42-15/16	14 x 44	4.2778	2 160	14 x 44	14 x 44	4.2778	9 240	-	-

1269

POLISHED PLATE CUTTING LOSS, ANALYSIS by CUSTOMERS ORDERS, CALCULATED from SEVERAL ORDERS for peri

	Customer	Order No.	Warehouse	Date of order	Final shipping date	Material quantity	Duplate ordered Description	Pattern No.	Pla shi quan
45B	Studebaker Corp.	E-282	Chicago	8/ 8/29	2/ 4/30	1 500	Windshield	246294	1
46B		E-357	do	4/ 7/30	5/28/30	3 700	Back light	242371	1
47B		E-359	do	4/ 7/30	5/28/30	2 100	Rear quarter	242369	1
48B		E-361	do	4/ 7/30	5/28/30	3 600	Rear door	242367	2
49B		E-362	do	4/ 7/30	5/28/30	1 800	Front door	242365	1
50B		E-363	do	4/ 7/30	5/28/30	1 900	do	242364	1
						279 666			270

Cutting loss on above orders:

Polished plate glass used	2 170 866 feet
Cutting loss (net)	11 900 feet
Cutting loss (per cent)	54/100 of one per cent.

† In Red on Original Exhibit.

for period 1928, 1929 and 1930.

No.	Plates shipped quantity	Size shipped to customer	Bracket size billed to customer	Sq.ft. area per plate	Quantity pol. plate glass used Plates	Actual size pol.plate taken from stock	Bracket size pol.plate billed Duplate	Sq. ft. area per plate actually used	Plate glass footage actually used	Cutting loss per Plate	Cutting loss Total
	1 500	13-3/8 x 41-11/16	14 x 42	4.0833	1 100	14 x 44	14 x 44	4.2778	4 706	.1945	214
	1 300	11-9/16 x 29-15/32	12 x 30	2.5	2 364	14 x 32	14 x 32	3.1111	7 355	.6111	1 445
	1 400	15-3/4 x 17-15/16	16 x 18	2.	2 800	15-3/4 x 17-15/16	16 x 18	1.9622	5 494	.0378†	106†
	2 000	15-15/16 x 25-1/2	16 x 26	2.8889	2 900	15-15/16 x 25-1/2	16 x 26	2.8227	8 186	.0662†	192†
					1 100	16 x 26	16 x 26	2.8889	3.178	-	-
	1 200	15-23/32 x 25-1/2	16 x 26	2.8889	2 400	16 x 26	16 x 26	2.8889	6 933	-	-
	1 175	15-3/4 x 29-1/2	16 x 30	3.3333	2 350	16 x 30	16 x 30	3.3333	7 833	-	
	270 758				605 707				2 170 866		11 900

COMPARISON OF DETAILS OF CONTESTED ITEMS ELIMINATED FROM COST AS ACTUALLY USED BY LYBRAND ROSS BROS. AND MONTGOMERY IN PLAINTIFF'S EXHIBITS 9 AND 9a AND AS ALLEGED BY DEFENDANT TO HAVE BEEN ELIMINATED ON DEFENDANT'S SUPPLEMENTAL EXHIBIT I I

		Plaintiff's Exhibits 9 and 9a Actual Figures*	Defendant's Supplemental Exhibit I I	Overstated on Supplemental Exhibit I I	Understated on Supplemental Exhibit I I	Remarks
Plate Glass Stock Loss		$180 243.28	$180 243.28			
" " Cutting Loss		98 767.93	98 767.93			
Assembly Dept. Loss		25 889.15	25 889.15			
Assembly & Pressing Dept. Loss		13 816.12	13 816.12			
Pressing Dept. Loss		896 741.64	896 741.64			
Carbitol Dept. Loss		2 253.11	2 253.11			
Pyralin Examination Loss		87 389.47	87 389.47			
Edging Dept. Loss		269 851.23)	(270 591.31			(The totals of the seven items on Plaintiff's Exhibits 9 and 9a and the two items on Defendant's Supplemental Exhibit II agree.
Duplate Stock Loss		60 132.02)	(83 751.68			
Rough Edge Dept. Loss		1 196.04)				
Smooth " " "		738.50)				
Polished " " "		395.52)				
Unedged Duplate Stock Rejections		4 232.93)				
Edged " " "		17 796.75)				
Adjustments resulting from revaluation of opening and closing inventories-decreases		151 435.65	151 435.65			Supplemental Exhibit II fails to credit this increase in cost allowed as an offset to the decrease eliminated.
increases		159 731.40†		$159 731.40		
Difference between Cost of Sales rejects charged to process and amount deducted later by Company. Amount charged to various process inventory accounts by Company during month of April	$60 334.61					Supplemental Exhibit I I fails to credit offset allowed by Plaintiff's Exhibits 9 and 9a
Amount deducted by Company on summary costs for the month	59 645.69†					
Net Amount eliminated		688.92	60 334.61	59 645.69		
Adjustment of value of reclaimed Duplate charged to Pressing and Edging Dept.						
Company value eliminated	162 235.83		162 235.83			Supplemental Exhibit I I fails to credit offset allowed by Plaintiff's Exhibits 9 and 9a
Adjusted value allowed	307 802.01†			307 802.01		
Net additional value allowed		145 566.18†				
Reclaimed Duplate allowed in Plaintiff's Exhibits 9 and 9a Company had taken at no value See monthly statement of Exhibit 9 April to August 1928		2 373.39†		2 373.39		
Adjustment to Inventory made in Plaintiff's Exhibit 9- August 1928		1 487.50†		1 487.50		
Adjustment of Cost of Duplate charged to General Expense - Advertising		1 263.47†		1 263.47		Supplemental Exhibit I I contains the elimination of the reduction in expense but does not take cognizance of the offsetting reduction in Cost of Sales made in Plaintiff's Exhibits 9 and 9a
Elimination of reduction in Cost of Duplate from General Expense - Advertising		1 263.47	1 263.47			
~~Elimination of reduction in Cost of Duplate from General Expense - Advertising~~		~~1 263.47~~	~~1 263.47~~			
Adjustment of Cost of Duplate transferred to Research Dept.		579.92†		579.92		Not included in Supplemental Exhibit I I.
Extraordinary Expense Mellon Institute Fellowship		21 273.83	21 273.82		.01	

~~See monthly statement of Exhibit 9~~					
April to August 1928		2 373.39†		2 373.39	
Adjustment to Inventory made in Plaintiff's Exhibit 9- August 1928		1 487.50†		1 487.50	
Adjustment of Cost of Duplate charged to General Expense - Advertising		1 263.47†		1 263.47	Supplemental Exhibit I I contains the elimination of the reduction in expense but does not take cognizance of the offsetting reduction in Cost of Sales made in Plaintiff's Exhibits 9 and 9a.
Elimination of reduction in Cost of Duplate from General Expense - Advertising		1 263.47	1 263.47		
~~Elimination of reduction in Cost of Duplate from General Expense - Advertising~~		~~1 263.47~~	~~1 263.47~~		
Adjustment of Cost of Duplate transferred to Research Dept.		579.92†		579.92	Not included in Supplemental Exhibit I I.
Extraordinary Expense		21 273.83	21 273.82		.01
Mellon Institute Fellowship		11 250.00	11 250.00		
Commissions to Pittsburgh Plate Glass Co.		220 742.95	220 742.95		
Experimental Expense		140 601.94	139 729.30		872.64 Difference not reconciled
Triplex Suit and Legal Expense		16 788.82	20 351.45	3 562.63	do
Manufacturing Cost of Returned Sales					
Total Credits to Customers- p.12 Plaintiff's Master's Exhibit 9a	812 770.93				
Total Credits-less Cost of Returns- p.15 Plaintiff's Master's Exhibit 9a	181 490.10				
Net elimination		631 280.83	722 717.38	91 436.55	Difference explained in McHenry's testimony in hearing held Nov. 29.1932
Difference in Sales and Costs as per page 12 of Exhibit #9a		3 354.57			3 354.57 Not included on Supplemental Exhibit I I
Allowances claimed since June 1, 1930			72 060.42	72 060.42	Returns not disclosed until Exhibit I was filed
Final Totals		$2 547 122.81	$3 242 838.57	$699 942.98	$4 227.22
Net Overstatement				$695 715.76	

Reconciliation of the total eliminations shown on Exhibit #9A.

Costs of unaccounted for and/or unsold product and certain expenses excluded in computing costs of individual shipments (see page 12 of Exhibit 9a)	$2 728 612.91 *
Total credits to customers for returned sales, net of cost of returned sales (see page 15, column C, Exhibit 9a)	181 490.10
Net eliminations per Exhibit 9a	$2 547 122.81

* This detail of the eliminations made on Exhibits 9 and 9a is calculated from the monthly statements in plaintiff's Master's Exhibit 9 on those pages headed "Income Account" and "Detail of Contested Items Eliminated from Cost of Duplate Sales".

† In Red in Original Exhibit.

PLAINTIFF'S EXHIBIT NO. 31.

[fol. 1272] **PLAINTIFF'S EXHIBIT NO. 32**

Revised Summary by Months of the Profits on Profit Making Sales

(Not Printed)

[fol. 1273] **DEFENDANTS' EXHIBIT "A"**

(Copy)

Agreement

Agreement made this 17th day of October 1927 between the Triplex Safety Glass Company of North America, a corporation organized under the laws of the State of Delaware and located in the City of Hoboken, New Jersey, hereinafter called the "Triplex Company" and Ford Motor Company, a corporation organized under the laws of the State of Delaware, and located in the City of Highland Park, Michigan, hereinafter called the "Ford Company."

Whereas, the Triplex Safety Glass Company, limited, of London, England, by an agreement in writing bearing date the thirtieth day of January, 1926, agreed to sell to Amory Lawrence Haskell and Neilson Edwards, both of Red Bank, in the State of New Jersey, and the said Haskell and Edwards agreed to purchase, upon the terms and conditions expressed in said agreement, the several Letters Patent of the United States and of the Dominion of Canada described in the schedule hereunto annexed and marked "Exhibit A" and the inventions and improvements covered thereby and the trade marks also described in said schedule, all of said inventions, improvements and trade marks pertaining to the manufacture of laminated or reinforced glass known under the trademark or tradename "Triplex" and referred to hereinafter under the trademark or tradename "Triplex";

And whereas, the said agreement of January 30, 1926 has been fully performed by said Haskell and Edwards;

[fol. 1274] And whereas, the said Haskell and Edwards have sold, assigned and transferred all of their rights under

the said agreement of January 30, 1926 unto the Triplex Company;

And whereas, the Triplex Company has adopted for its use a trademark which consists of three X's within an oval (thus xxx) which was registered in the United States Patent Office August 30, 1927, under the number 232034;

And whereas, the Ford Company is desirous of acquiring from the Triplex Company the right to manufacture Triplex Glass for use in vehicles manufactured by the Ford Company or its subsidiaries, upon and subject to the terms of this agreement.

Now, therefore, in consideration of the mutual covenants hereinafter expressed, and of the sum of One Dollar by each of the parties hereto paid unto the other, the receipt whereof is hereby acknowledged, the parties hereto have agreed together as follows:

One. Subject to the approval of said The Triplex Safety Glass Company Limited, the Triplex Company gives to the Ford Company, and its subsidiaries, the right, license and privilege to make, use, practice and employ the inventions, improvements, methods, mixtures and processes covered by any or all of said Letters patent of the United States and the Dominion of Canada and now or at any time hereafter owned, controlled or in the possession of the Triplex Company and pertaining to the manufacture of laminated or reinforced glass or Triplex glass, and to install such glass in vehicles, both initially or by way of replacement, manufactured by the Ford Company or its subsidiaries, without the payment of any other consideration whatsoever, and covenants and agrees that it will communicate [fol. 1275] to the Ford Company and to any person designated by the Ford Company, completely and clearly all such information, advice, explanation and instruction as shall be necessary to enable the Ford Company, and its subsidiaries, successfully to make, use, practice and employ the inventions, improvements, methods, mixtures and processes pertaining to the manufacture of laminatel or Triplex glass which at any time hereafter shall be made or discovered and communicated to it by any person and used, practiced, and employed by the Triplex Company in the manufacture of laminated or reinforced glass and necessary to or useful in the successful commercial production of laminated or reinforced glass of a quality in every re-

spect at least equal to the quality of the laminated or reinforced glass heretofore, now and hereafter manufactured by the Triplex Company and sold by it under the name of "Triplex," and gives to the Ford Company, and its subsidiaries, the right and privilege to install such glass in such vehicles only under the trademark "Triplex", registered in the United States Patent Office August 26, 1923, under the number 93153 and under the trade mark registered August 30, 1927 under the number 232034, Provided, However, and It Is Expressly Understood and Agreed that before receiving such information, advice, explanation and instruction, every person to whom the same shall be communicated shall covenant and undertake that he will keep the same secret and for the exclusive benefit of the Triplex Company and of the said The Triplex Safety Glass Company, Limited.

Two. The Ford Company shall forthwith undertake and prosecute diligently at its expense, the development, perfection and production of a continuous process for the manufacture of Triplex Glass for use in said vehicles together with all of the necessary machinery and equipment [fol. 1276] therefor, and shall put the same in practical operation at *at* the earliest practicable date.

Three. The Ford Company shall, from time to time, as the development of the continuous process referred to in clause Two proceeds, keep the Triplex Company fully informed in writing of the progress of the work, with full and detailed information as to the construction of all machines designed and methods of manufacture employed therein, with such drawings as may be necessary and thereafter shall in like manner keep the Triplex Company informed in writing of all improvements in machines, methods, materials, etc., designed and employed for and by the Ford Company in the manufacture of Triplex or laminated glass with such necessary drawings and other data and shall permit any officer of the Triplex Company or any other person designated by the Triplex Company at any time to inspect the machinery, processes, methods and materials employed by the Ford Company, or its subsidiaries, in the manufacture of Triplex or laminated glass as provided herein. If any of such improvements shall in the opinion of counsel for the Triplex Company be deemed to

be patentable, the Ford Company shall give to the Triplex Company such information as shall be necessary to enable applications for Letters Patent of the United States to be prepared and shall also cause such invention and applications to be executed and assigned to the Triplex Company, it being understood and agreed that the entire right, title and interest in and to such improvements for the United States and for all foreign countries, shall be vested in the Triplex Company subject to the right of the Ford Company, and its subsidiaries to use the same in the manufacture of Triplex or laminated glass for use in said vehicles subject to all of the conditions of this agreement.

[fol. 1277] Four. The Ford Company adopts Triplex glass for as much of its glass equipment in the manufacture of its vehicles, and the vehicles of its subsidiaries, as it deems practicable. It agrees not to manufacture Triplex or laminated glass for or install the same except in such vehicles or parts thereof, and to etch indelibly on every piece of laminated or Triplex glass made or installed by it under the provisions of this agreement the trademark xxx registered August 30, 1927, under the number 232034 with the word "Ford" above the same and the word "Triplex" below the same, and to use the said trademark "Triplex" in all advertisements and advertising literature in which Triplex or laminated glass is referred to.

Five. The Ford Company shall at the option of the Triplex Company sell and deliver or cause to be sold and delivered to the Triplex Company, at the cost of manufacture, with no charge for engineering costs machines as designed and built by or for the Ford Company for use in the manufacture of Triplex or laminated glass and shall give to Triplex Company the full benefit and advantage of the purchasing power and position of the Ford Company, and its subsidiaries, in the purchase of glass, pyroxylin plastic or alternative materials, and binding and sealing materials for use in the production by the Triplex Company of Triplex or laminated glass for sale to the Ford Company to the end that the Triplex Company may purchase the same on terms of price and delivery as favorable under like conditions and circumstances as the same may be purchased by the Ford Company and its subsidiaries, including such materials produced by the Ford Company, or any of its

subsidiaries where such materials are produced in excess of its own requirements.

[fol. 1278] Six. When the Ford Company shall have completed the development of a continuous process for the manufacture of Triplex or laminated glass as provided in Clause Two, the Ford Company shall notify the Triplex Company thereof in writing and before April 30, 1928, shall give to the Triplex Company in writing, an order for the manufacture and delivery to the Ford Company, of windshield glass for Ford cars of Triplex or laminated glass or other pieces of Triplex or laminated glass. The Ford Company agrees to purchase Triplex glass from the Triplex Company for a period of four (4) years from and after April 30, 1928 in amount up to one-half of the monthly requirements of Triplex glass to the Ford Company, and its subsidiaries, in such quantities as shall be acceptable to the Triplex company. The Ford Company shall pay the Triplex Company therefore at the cost of production to the Ford Company or to the Triplex Company at the option of the Ford Company, of such pieces of glass plus twenty cents (20) for each Ford Windshield, as per blue prints attached, of Triplex or laminated glass so manufactured by the Triplex Company. The amount to be paid for any pieces of glass other than windshields for Ford cars shall be proportioned to the area and quality of plain glass used for the production of such other pieces of Triplex glass as they are relative to the area and quality of glass used for such Ford windshields. Cost shall be computed on the same accounting basis as that now employed in the Ford Company's glass plant. The terms of payment shall be net cash, payable on the 15th of the month following shipment unless otherwise agreed, F. O. B. factory.

Seven. It is understood and agreed that on and after May 1, 1932, the Ford Company shall be relieved from its obligation to purchase Triplex or laminated glass from the Triplex Company. All other clauses, conditions and cove-[fol. 1279] nants however, to be of full force and effect as to both parties.

Eight. It is understood and agreed that on May 1, 1930, or at any time thereafter prior to May 1, 1932, at the request in writing of either the Ford Company or the Triplex Company, the price to be paid by the Ford Company to the

Triplex Company on each piece of glass in addition to the cost of manufacture of the same shall be subject to revision as shall be agreed upon by a Committee to consist of the President of the Ford Company, the President of the Triplex Company and in the event of their inability to agree, of a third person to be mutually agreed upon by them.

In witness whereof, the parties hereto have caused this agreement to be executed by their duly authorized officers and the seals of said corporations to be hereunto affixed on the day and year first above written.

Triplex Safety Glass Company of North America, by A. L. Haskell, Its President, by Starr Cooper, Its Secretary. (Seal.)

Ford Motor Company, by Edsel B. Ford, Its President, by J. B. Craig, Its Secretary. (Seal.)

[fol. 1280] EXHIBIT A

Schedule

Letters Patent of the United States

Inventor	Number	Date	Title
Edouard Benedictus	1,098,342	May 26, 1914	Reinforced glass and process of manufacturing the same.
"	1,128,094	Feb. 9, 1915	Reinforced glass and its manufacture.
"	1,182,739	May 9, 1916	Manufacture of Strengthened glass.
"	1,206,656	Nov. 28, 1916	Press-Plate.
Leon Francis Mascart	1,342,267	June 1, 1920	Reinforced glass and process of making the same.
"	1,342,268	June 1, 1930	Manufacture of reinforced glass.

Letters Patent of the Dominion of Canada

Inventor	Number	Date
Edouard Benedictus	169,470	May 16, 1916
W. R. Lyttleton	162,587	May 18, 1915
W. R. Lyttleton	169,308	May 9, 1916.

The entire right, title and interest in, to and under the above recited several letters patent of the United States of America and of the Dominion of Canada, and in and to the several improvements and inventions covered thereby.

The entire right, title and interest within and throughout the United States of America and the Dominion of Canada, in, to and under the several trade marks heretofore registered in the United States Patent Office and used in

and/or in connection with the business of making and sell-[fol. 1281] ing laminated glass and the good will connected therewith, as follows:

The trade mark registered in the name of Societe du Verre Triplex, of Paris, France, for reinforced glass, August 27, 1912, Certificate No. 88,125, consisting of the letters VTX within a circle.

The trade mark registered in the name of Edouard Benedictus of Paris, France, for reinforced glass, August 26, 1913, certificate No. 93,153, consisting of the word Triplex.

The Triplex Safety Glass Company, Ltd., whose registered office is situated at Albemarle Street, Piccadilly, in the County of London, England, hereby consents to and approves the terms and conditions of the foregoing contract entered into between The Triplex Safety Glass Company of North America, Inc., whose offices are at Hoboken, New Jersey, and the Ford Motor Company, a Delaware Corporation, whose principal offices are at Highland Park, Michigan, both of the United States of America, expressly consenting that the Ford Company may at any time introduce and sell laminated or reinforced glass in the United Kingdom or into any other country for which the Triplex Safety Glass Company Ltd., of London England, or its associated companies, or any of them, possess the sole right of selling triplex glass so long as such glass be fitted to one of said Ford Company's motor cars, or other vehicles, contrivances or appliances thereof, and the said Triplex Safety Glass Company, Ltd., shall not be at liberty to institute any proceedings for infringement against said Ford Company for [fol. 1282] introducing such laminated or reinforced glass, or selling the same in such countries or places.

In witness whereof the Triplex Safety Glass Company Limited has caused its Common Seal to be hereto affixed this 26th day of October, 1927.

The Common Seal of the Triplex Safety Glass Company Limited was hereto affixed in the presence of Cecil Clare, Reginald Delpech, Directors.

D. McDuell, Secretary. (Seal.)

(Here follows 1 photo, side folio 1283.)

DEFENDANTS' EXHIBIT "B".

GOODS SHIPPED AT PURCHASER'S RISK OF BREAKAGE UNLESS INSURANCE IS SPECIFICALLY EFFECTED
ALL CLAIMS MUST BE MADE WITHIN THREE DAYS FROM RECEIPT OF GOODS

Pittsburgh Plate Glass Company.

GLASS - MIRRORS - PAINTS

TERMS 30 DAYS NET
1% CASH 10 DAYS

2235 GRANT BLDG

CABLE ADDRESS "GLASSPIT"

PITTSBURGH, PA. Oct, 19 29

SOLD TO Duplate Corp.,
Creighton, Pa.

OUR ORDER
YOUR ORDER
WORKS 1/8
CASES
CAR NO
SHIPPED VIA

MEMO	PLATES	SIZE	QUALITY	FEET		PRICE	AMOUNT	TOTAL
			M. Glaz 7/64"	1/28B	26-8-0	.39	10.40	
				2/8/5	20465-4-8	.45	9209.44	
				5/7	1719-2-0	.49	842.39	
				7/10	1191-10-8	.51	607.88	10670.11
			Glaz 7/64"	1/28A	450-0-0	.21	94.50	
				1/28B	71952-1-4	.35	25183.24	
				2/8/5	211803-4-8	.39	82603.33	
				2/8/5A	1038-10-8	.39	405.17	
				5/7	7973-0-8	.42	3348.69	
				7/10	6165-2-8	.43	2651.04	
				10/15	295-4-0	.44	129.95	
				15/25	87-0-0	.45	39.15	114455.07
			Silv I 7/64"	1/28B	23-4-0	.47	11.43	
				2/8/5	205-0-0	.55	112.75	
				5/7	12-0-0	.61	7.32	
				7/10	39-0-0	.65	25.35	156.85
			M Glaz 7/64"	1/28A	2812-6-0	.26	731.25	
				1/28B	12324-5-4	.39	4806.53	
				2/8/5	97043-11-4	.45	43669.77	
				5/7	46920-8-8	.49	22991.75	
				7/10	5289-8-0	.51	2697.73	74896.43
								200178.46
				Less 10%				20017.85
								180160.61
				Less 1%				1801.61
								$178359.00

[fol. 1284]

DEFENDANTS' EXHIBIT "C"

Diagram of Plant

(Not Printed.)

DEFENDANTS' EXHIBIT "D"

Blueprint—Fisher Body Corporation—April 30, 1928

(Not Printed.)

DEFENDANTS' EXHIBIT "E"

United States Patent No. 1,781,084

(Not Printed.)

DEFENDANTS' EXHIBIT "F"

Plate Production Analysis

(Not Printed.)

DEFENDANTS' EXHIBIT "G"

Order Slip—Fisher Body Corporation

(Not Printed.)

DEFENDANTS' EXHIBIT "H"

[fol. 1285] **DEFENDANTS' EXHIBIT "I-1 TO I-17"**

Samples of Glass

(Physical Exhibits.)

DEFENDANTS' EXHIBIT "J"

DEFENDANTS' EXHIBIT "K"

Analysis of Experimental Account

(Not Printed.)

DEFENDANTS' EXHIBIT "L-1"

Price Quotation

(Not Printed.)

DEFENDANTS' EXHIBIT "L-2"

Price Quotation

(Not Printed.)

DEFENDANTS' EXHIBIT "L-3"

Price Quotation

(Not Printed.)

DEFENDANTS' EXHIBIT "L-4"

Price Quotation

(Not Printed.)

[fol. 1286] **DEFENDANTS' EXHIBIT "M"**

Hudson Motor Car Company,

Detroit, Mich., U. S. A.

Cable Address: Hudson Car

April 5, 1928.

To Hudson Distributors:

We have had many inquiries from our distributors as to the possibility of their obtaining safety glass windshields, adapted for the standard Hudson-Essex models—Coaches, Sedans, and Coupes.

The Triplex Safety Glass Company of North America, Hoboken, N. J. have an attractive proposition to offer our distributors on Triplex Utility Windshield Glass for standard Hudson-Essex models, providing a sufficient demand is created to warrant their manufacturing on a production basis.

Triplex glass is a laminated glass made by uniting, under heat and pressure, two pieces of specially selected ground and polished glass with a Pyroxalin Plastic introduced between the two sheets. This laminated sheet is then sealed at all edges to insure a perfect adhesion.

When Triplex cracks under impact each small particle of glass adheres firmly to the Pyroxalin Plastic. This prevents the flying of broken glass and thus affords absolute protection from glass injuries. Also under impact Triplex is flexible.

Since approximately February 15th all Essex Sedans, Coaches, and Coupes, and all Hudson built Sedans, Coaches, and Coupes have been fitted with a standard windshield: thus one Triplex safety glass will serve all of them. Prior to February 15th two windshield glass sizes were used intermittently—the present production type, and one ⅛" narrower. It can be concluded, therefore, that the demand will be largely for the present size glass, 41" x 10-29/32".

[fol. 1287] The Triplex Safety Glass Company are prepared to supply all domestic Hudson-Essex distributors with Utility windshield glasses of this size, or will furnish combinations of both sizes at the list price of $14.50 per glass, less 40% discount, f. o. b. Hoboken, N. J. Minimum orders for windshield glasses must comprise twenty, or one

full box, and on all such orders 40% discount will apply. Their suggested installation charge is $3.00, which includes transportation and handling costs. The change can be made in exactly 20 minutes, covering removal of the windshield, removing the plate glass, replacing with Triplex, and returning the windshield to the car.

The Triplex Company have prepared a very handsome poster, which they will supply those of our distributors and dealers who wish them. A facsimile of the poster is attached to this letter.

Will you please give this proposition your consideration and advise us definitely how many cases of the glass you wish to order for immediate delivery to take care of your own and your dealers' requirements. The Triplex Safety Glass Company will be in a position to start filling orders approximately thirty days after we notify them that there is a sufficient demand to warrant their going into production on the windshield glass.

The Triplex Safety Glass Company also propose to supply you with price lists indicating list prices and discounts on Safety Glass for all Hudson-Essex models, covering door glass, back panel, also windshield and other glass for Hudson Custom models. Naturally the prices on these will be somewhat higher because of the limited production.

Yours very truly, Hudson Motor Car Company, J. E. McLarty, Service Manager.

Ser:1015.

y Detroit Ex N.
4/14/32 E.B.

HUDSON ESSEX SUPER SIXES

With beauty to match
their super-six performance
— *now we offer*

Triplex

NON SHATTERABLE
UTILITY WINDSHIELDS
FOR CURRENT MODELS

$14.50
Plus Installation

THE VOGUE OF TOMORROW

BULLETIN: Posters reproduced in colors, 19 x 25 inches, available for window display.

DEFENDANTS' EXHIBIT "O".

Tabulation of Operating Losses—Duplate Corporation.

(Not Printed.)

DEFENDANTS' EXHIBIT "P".

DUPLATE CORPORATION

CREIGHTON, PENNA.

CULLET (POL. PLATE) SOLD TO PITTSBURGH PLATE GLASS COMPANY

July	1928	67280#	)					
Aug.	"	179800#	)					
Sept.	"	223880#	)	Bill #73 - 12/31/28				
Oct.	"	215760#	)					
Nov.	"	162400#	)					
Dec.	"	103620#	)					
Total		952940#	@	$8.00 per N. T.			3811.76	3811.76
Jan.	1929	169360#	@	8.00 " "	(Bill	#102	677.44	
Feb.	"	168200#	@	8.00 " "	(Bill	#123	672.80	
Mar.	"	213410#	@	8.00 " "	(Bill	#178	853.76	
Apr.	"	150800#	@	8.00 " "	(Bill	#208	603.20	
May	"	150800#	@	8.00 " "	(Bill	#229	603.20	
June	"	71920#	@	8.00 " "	(Bill	#275-1)	287.68	
July	"	85840#	@	8.00 " "	(Bill	#336	343.36	
Aug.	"	112520#	@	8.00 " "	(Bill	#391	450.08	
Sept.	"	61200#	@	8.00 " "	(Bill	#431	244.80	
Oct.	"	93960#	@	8.00 " "	(Bill	#466	375.84	
Nov.	"	73080#	@	8.00 " "	(Bill	#495	292.32	
Dec.	"	61480#	@	8.00 " "	(Bill	#538	245.92	5650.40
Total		1412650#						
Jan.	1930	164270#	@	$8.00 per N. T.	(Bill	#687	657.08	
Feb.	"	133400#	@	8.00 " "	(Bill	#[illegible]	533.60	
Mar.	"	112520#	@	8.00 " "	(Bill	#[illegible]	450.08	
Apr.	"	44080#	@	8.00 " "	(Bill	#716	176.32	
May	"	49880#	@	8.00 " "	(Bill	#744	199.52	2016.60 11478.76
		504150#						
		2869690#						

1290

1025

DEFENDANTS' EXHIBIT "Q".

Pyralin Losses—Duplate Corporation.

(Not Printed.)

DEFENDANTS' EXHIBIT "Q-1".

Sheets Showing Figures From Which Were Obtained Losses in Pyralin Examination Department, Reduced to Square Feet.

(Not Printed.)

D.f. & R
10/4/32 R.B

ANALYSIS OF 1/8" POLISHED PLATE GLASS USED IN PRODUCING DUPLATE (FEET ONLY)

	YEAR 1928		YEAR 1929		YEAR 1930 1/1 TO 5/30/30	
Inventory beginning of Period	74		245,105		175,534	
Purchases P.P.G.Co. Billing	3,600,212		5,206,609		1,524,086	
Difference in Count P.P.G.Co. & Duplate	169†		2,845†		4	
Glass Received Billed in subsequent period	109,344		113,380		-	
Received from Reclaiming Dept.	235,675		386,178		63,302	
Total Receipts		3,945,136		5,948,407		1,762,918
Shipments	2,160,990		4,548,265		1,584,911	
Samples (Advertising)	2,299		10,076		5,578	
Transferred to Other Departments	15,068		21,150		9,795	
Operating Loss (Exhibit "O")	1,521,684		1,090,070		148,853	
	3,700,031		5,665,559		1,548,515	
Glass billed received previous period	-	3,700,031	109,344	5,772,883	113,360	1,661,875
Inventory End of Period		245,105		175,534		101,041

ANALYSIS OF PYRALIN USED IN PRODUCING ALL LAMINATED PRODUCTS (FEET ONLY)

	YEAR 1928		YEAR 1929		YEAR 1930 1/1 TO 5/30/30	
Inventory beginning of Period	-		1,526,646		870,765	
Purchases	4,597,340		2,994,253		1,246,652	
Received from Reclaiming Dept.	32,070		193,089		31,651	
Total Receipts		4,629,410		4,713,988		1,549,068
Returns to Manufacturer	394,807		1,002,512		97,634	
Shipments	1,061,799		2,304,255		754,195	
Samples (Advertising)	1,254		6,182		658	
Transferred to Other Departments	7,654		10,615		-	
Operating Loss	1,617,670	3,102,764	1,119,691	4,445,225	210,484	1,062,791
Inventory End of Period		1,526,646		870,765		486,275

† In Red in Original Exhibit.

DEFENDANTS' EXHIBIT "R".

DEFENDANTS' EXHIBIT "S".
Patterns Cut From Pyralin Sheeting.

(Physical Exhibit.)

DEFENDANTS' EXHIBIT "T".
Patterns Cut From Glass Rectangles.

(Physical Exhibit.)

DEF

PITTSBURGH SAFETY GLASS COMPANY AND DUPLATE CORPORATION
CREIGHTON, PA.

POLISHED PLATE CUTTING LOSS ANALYSIS BY CUSTOMER ORDERS CALCULATED FROM SEVERAL ORDERS FOR PERIODS 1928-1929 & 1930

CUSTOMER	ORDER NO.	WARE-HOUSE	DATE OF ORDER	FINAL SHIPPING DATE	MAT'L. ORDERED - "DUPLATE" QUANTITY	DESCRIPTION	PATT.NO.	PLATES SHIPPED QUANTITY	SIZE SHIPPED TO CUSTOMER	BRACKET SIZE BILLED TO CUSTOMER	SQ.FT. AREA PER PLATE	QUANTITY POL.PL. GL.USED-PLATES	ACTUAL SIZE POL. PLATE TAKEN FROM STOCK	BR SI PL TO
Fisher Body Corp.	G.O.1975	Detroit	7/5/28	8/25/28	1,400	(Rear Quarter	A-13952	1,400	17-9/32x21-5/8	18 x 22	2.75	3,465	18 x 22½	18
"	" "	"				(" "	"	-	" "	18 x 22	2.75	319	18 x 26	18
"	" 2057	"	7/18/28	8/6/28	2,970	Back Lights	A-7011	2,970	9½ x 30-7/8	10 x 32	2.2222	5,940	11 x 32	12
"	" 2311	"	8/14/28	9/24/28	4,500	" "	A-7011	4,500	9½ x 30-7/8	10 x 32	2.2222	9,000	11 x 32	12
"	" 2313	"	"	"	1,600	Rear Quarter	A-13952	1,600	17-9/32x21-5/8	18 x 22	2.75	6,645	18 x 22½	18
"	" 2632	"	9/10/28	10/8/28	850	Front Door	96925	850	16-1/2x27-5/4	18 x 28	3.50	2,486	17 x 29½	18
"	" 2636	"	"	10/10/28	1,500	Windshield	A-13704	1,500	14-1/8x43-17/32	16 x 44	4.8889	3,165	15 x 45	16
"	" 2949	"	10/5/28	11/6/28	1,800	Rear Quarter	A-13952	1,800	17-9/32x21-5/8	18 x 22	2.75	4,006	18 x 22½	18
Chrysler Motor Car Corp.	D-690	"	6/22/28	11/29/28	36,800	Windshield	94975	36,800	14-7/8x45-29/32	16 x 44	4.8889	105,225	16 x 46	16
"	"	"	"	"	11,112	"	94970	11,112	12-7/16x43-27/32	14 x 44	3.2778	31,057	14 x 46	14
Pierce Arrow Motor Co.	Buff. 17	Buffalo	1/16/29	4/20/28	2,030	Back Lights	125097	2,030	11-5/16x29-5/8	12 x 30	2.5	6,060	12 x 32	12
"	" 24	"	1/17/29	3/11/29	3,370	Front Door	124558	3,370	16-1/4x31-23/32	18 x 32	4.0	10,299	17 x 33	18
"	" 33	"	1/21/29	3/14/29	570	Rear Quarter	125177	570	16-5/16x29-29/32	18 x 30	3.75	2,008	17 x 31	18
"	" 121	"	2/26/29	5/22/29	1,260	Front Door	124558	1,260	16-1/4x31-23/32	18 x 32	4.00	4,494	17 x 33	18
Studebaker Corp.	E-268	Chicago	7/13/29	1/31/30	6,300	Rear Quarter	242569	6,300	15-3/4x17-15/16	16 x 18	2.0	6,900	16 x 18½	16
"	E-268											400	16½x 18½	18
"	E-268											970	17 x 19	18
"	E-268											1,746	18 x 20	18
"	E-274	"	7/13/29	2/4/30	11,500	Rear Door	{242567 242571}	11,500	15-15/16x25-1/2	16 x 26	2.8889	30,928	16½x 26	18
"	"											3,776	17 x 26	18
"	"											900	18 x 26	18
"	"											1,050	18 x 28	18
"	E-301	"	11/20/29	5/27/30	3,375	Front Door	242565	3,375	15-15/16x25-1/2	16 x 26	2.8889	754	18 x 26	18
"	"	"										6,768	18 x 28	18
"	E-303	"	11/20/29	"	4,450	Rear "	242567	4,450	15-15/16x25-1/2	16 x 26	2.8889	9,664	18 x 28	18
"	"											500	18 x 26	18
"	E-307	"	"	"	1,825	Back Light	242571	1,825	11-9/16x29-15/32	12 x 30	2.5000	3,684	14 x 32	14
"	E-340	"	2/3/30	5/8/30	1,250	Front Door	242564	1,250	15-5/4x29-1/2	16 x 30	3.3333	1,250	16 x 30	16
"	"										3.3333	874	18 x 30	18
"	"											366	18 x 32	18
"	E-343	"	2/3/30	5/2/30	4,500	Rear Door	242567	4,500	15-15/16x25-1/2	16 x 26	2.8889	4,450	16½x 26	18
"	"											4,150	18 x 26	18
"	E-347	"	"	"	2,000	Back Light	242571	2,000	11-9/16x29-15/32	12 x 30	2.5000	4,080	14 x 32	14
Joseph N. Smith & Co.	D-182	Detroit	2/25/29	5/25/29	3,135	Windshield	6130-1	3,135	11-31/32x43-7/32	12 x 44	3.6667	4,922	15 x 45	15
"	D-202 & 218	"	3/12/29	4/5/29	925	"	A-6-5616	925	11-1/16x43-3/4	12 x 44	3.6667	2,550	12 x 46	12
Fisher Body Corp.	G.O.877	"	3/15/29	5/16/29	1,000	Rear Quarter	A-13952	1,000	17-9/32x21-5/8	18 x 22	2.75	3,900	18 x 22½	18
"	"				1,000	Windshield	A-13704	1,000	14-1/8x43-17/32	16 x 44	4.8889	5,100	15 x 45	15
"	"				200	Rear Quarter	A-13927	200	15-11/16x22-3/8	16 x 24	2.6667	990	18 x 24	18
"	G.O.394	"	2/9/29	4/4/29	1,300	Windshield	A-13704	1,300	14-1/8x43-19/32	16 x 44	4.8889	3,730	15 x 45	15
"	"	"			900	Rear Quarter	A-13952	900	17-9/32x21-5/8	18 x 22	2.75	2,400	18 x 22½	18
"	"				700	Door Light	A-17147	700	16-1/2x27-5/4	18 x 28	3.50	1,800	17 x 29½	18
TOTALS					115,522			115,522				291,705		

CUTTING LOSS ON ABOVE ORDERS

Polished Plate Glass Used	1,304,659 ft.	
Cutting Loss	86,969 "	
" " Per Cent	7.22	

DEFENDANTS' EXHIBIT "U"

PITTSBURGH SAFETY GLASS COMPANY AND DUPLATE CORPORATION
CREIGHTON, PA.

TED PLATE CUTTING LOSS ANALYSIS BY CUSTOMER ORDERS CALCULATED FROM SEVERAL ORDERS FOR PERIODS 1928-1929 & 1930

DATE OF ORDER	FINAL SHIPPING DATE	MAT'L. ORDERED - "DUPLATE" QUANTITY	DESCRIPTION	PATT.NO.	PLATES SHIPPED QUANTITY	SIZE SHIPPED TO CUSTOMER	BRACKET SIZE BILLED TO CUSTOMER	SQ.FT. AREA PER PLATE	QUANTITY POL.PL. GL.USED-PLATES	ACTUAL SIZE POL. PLATE TAKEN FROM STOCK	BRACKET SIZE.POL. PLATE BILLED TO DUPLATE	SQ.FT. AREA PER PLATE	PLATE GLASS FOOTAGE PURCH'D.	CUTTING LOSS FOOTAGE PER PLATE	CUTTING LOSS FOOTAGE TOTAL
/28	8/25/28	1,400	(Rear Quarter	A-13952	1,400	17-9/32x21-5/8	18 x 22	2.75	3,465	18 x 22½	18 x 24	3.00	10,395	.25	868
			(" "	"	-	" "	18 x 22	2.75	319	18 x 26	18 x 26	3.25	1,037	.50	159
/28/28	8/6/28	2,970	Back Lights	A-7011	2,970	9½ x 30-7/8	10 x 32	2.2222	5,940	11 x 32	12 x 32	2.6667	15,840	.4445	2,640
/14/28	9/24/28	4,500	" "	A-7011	4,500	9½ x 30-7/8	10 x 32	2.2222	9,000	11 x 32	12 x 32	2.6667	24,000	.4445	4,000
"	"	1,600	Rear Quarter	A-13952	1,600	17-9/32x21-5/8	18 x 22	2.75	6,645	18 x 22½	18 x 24	3.00	19,935	.25	4,735
/10/28	10/8/28	850	Front Door	96925	850	16-1/2x27-5/4	18 x 28	3.50	2,488	17 x 28½	18 x 30	3.75	9,350	.25	622
"	10/10/28	1,500	Windshield	A-13704	1,500	14-1/8x43-17/32	16 x 44	4.8889	3,165	15 x 45	16 x 48	5.1111	16,177	.2222	703
5/28	11/6/28	1,800	Rear Quarter	A-13952	1,800	17-9/32x21-5/8	18 x 22	2.75	4,006	18 x 22½	18 x 24	3.00	12,018	.25	1,001
/22/28	11/29/28	36,800	Windshield	94975	36,800	14-7/8x43-29/32	16 x 44	4.8889	105,225	16 x 46	16 x 48	5.1111	537,805	.2222	23,380
"	"	11,112	"	94970	11,112	12-7/16x43-27/32	14 x 44	4.2778	31,087	14 x 46	14 x 48	4.4722	138,804	.1944	6,033
/26/29	4/20/28	2,030	Back Lights	125097	2,030	11-5/16x29-5/8	12 x 30	2.5	6,060	12 x 32	12 x 32	2.6667	16,160	.1667	1,010
/27/29	5/11/29	3,370	Front Door	124558	3,370	16-1/4x31-23/32	18 x 32	4.0	10,299	17 x 33	18 x 34	4.25	43,771	.25	2,575
/31/29	5/14/29	570	Rear Quarter	125177	570	16-5/16x29-29/32	18 x 30	3.75	2,002	17 x 31	18 x 32	4.00	8,008	.25	500
/26/29	6/22/29	1,260	Front Door	124558	1,260	16-1/4x31-23/32	18 x 32	4.00	4,494	17 x 33	18 x 34	4.25	19,099	.25	1,123
/25/29	1/31/30	6,500	Rear Quarter	242569	6,500	15-5/4x17-15/16	16 x 18	2.0	6,900	16 x 18½	16 x 20	2.2222	15,333	.2222	1,533
									400	16½x 18½	18 x 20	2.50	1,000	.5	200
									970	17 x 19	18 x 20	2.50	2,425	.5	485
									1,746	18 x 20	18 x 20	2.50	4,365	.5	873
/25/29	2/4/30	11,500	Rear Door	{242567 244011}	11,500	15-15/16x25-1/2	16 x 26	2.8889	20,926	16½x 26	18 x 26	3.25	68,009	.3611	7,456
									3,776	17 x 26	18 x 26	3.25	12,272	.3611	1,364
									900	18 x 26	18 x 26	3.25	2,925	.3611	325
									1,050	18 x 28	18 x 28	3.50	3,675	.6111	642
1/30/29	5/27/30	3,375	Front Door	242566	3,375	15-63/64x25-1/2	16 x 26	2.8889	754	18 x 26	18 x 26	3.25	2,451	.3611	272
									6,766	18 x 28	18 x 28	3.50	23,688	.6111	4,136
1/30/29	"	4,450	Rear "	242567	4,450	15-15/16x25-1/2	16 x 26	2.8889	9,664	18 x 28	18 x 28	3.50	33,824	.6111	5,885
									500	18 x 26	18 x 26	3.25	1,625	.3611	181
"	"	1,825	Back Light	242571	1,825	11-9/16x29-15/32	12 x 30	2.5000	3,684	14 x 32	14 x 32	3.111	11,461	.6111	2,251
/3/30	5/8/30	1,250	Front Door	242564	1,250	15-5/4x29-1/2	16 x 30	3.3333	1,250	16 x 30	16 x 30	3.3333	4,167	-	-
								3.3333	874	18 x 30	18 x 30	3.75	3,278	.4167	364
									366	18 x 32	18 x 32	4.00	1,552	.6667	219
/1/30	5/8/30	4,300	Rear Door	242567	4,300	15-15/16x25-1/2	16 x 26	2.8889	4,450	16½x 26	16 x 26	2.8889	12,855	-	-
									4,150	18 x 26	18 x 26	3.25	13,487	.3611	1,499
"	"	2,000	Back Light	242571	2,000	11-9/16x29-15/32	12 x 30	2.5000	4,080	14 x 32	14 x 32	3.1111	12,507	.6111	2,457
/25/29	5/25/29	3,125	Windshield	6120-1	3,125	11-31/32x43-7/32	12 x 44	3.6667	4,922	15 x 45	14 x 44	4.2778	21,055	.6111	3,008
/22/29	4/5/29	925	"	A-6-5616	925	11-1/16x43-3/4	12 x 44	3.6667	3,650	12 x 46	12 x 46	3.8333	9,775	.1666	485
/25/29	5/16/29	1,000	Rear Quarter	A-13952	1,000	17-9/32x21-5/8	18 x 22	2.75	2,900	18 x 22½	18 x 24	3.00	8,700	.25	725
		1,000	Windshield	A-13704	1,000	14-1/8x43-17/32	16 x 44	4.8889	5,100	15 x 45	16 x 48	5.1111	26,067	.2222	1,133
		200	Rear Quarter	A-13927	200	15-11/16x29-5/8	16 x 24	2.6667	990	18 x 24	18 x 24	3.00	2,970	.3333	330
/4/29	4/4/29	1,500	Windshield	A-13704	1,500	14-1/8x43-19/32	16 x 44	4.8889	5,750	15 x 45	16 x 46	5.1111	19,064	.2222	829
		900	Rear Quarter	A-13952	900	17-9/32x21-5/8	18 x 22	2.75	2,400	18 x 22½	18 x 24	3.00	7,200	.25	600
		700	Door Light	A-17147	700	16-1/2x27-5/4	18 x 28	3.50	1,800	17 x 28½	18 x 30	3.75	6,750	.25	450
		115,822			115,822				291,705				1,204,869		86,969

[fol. 1295] **DEFENDANTS' EXHIBIT "V"**

Copies of United States Patents

Formation of Sheet

No. 1,519,244 to Evans, Dated December 16, 1924.
No. 1,560,078 to Gelstharp, Dated November 3, 1925.
No. 1,560,079 to Gelstharp, Dated November 3, 1925.
No. 1,569,082 to Fox, Dated January 12, 1926.
No. 1,569,134 to Owen, Dated January 12, 1926.
No. 1,576,516 to Koupal, Dated March 12, 1926.
No. 1,580,156 to Oakes, Dated April 13, 1926.
No. 1,583,779 to Core, Dated May 11, 1926.
No. 1,598,721 to Hitchcock, Dated September 7, 1926.
No. 1,622,346 to Rotheram and Evans, Dated March 29, 1927.
No. 1,657,212 to Hitchcock, Dated January 24, 1928.

Surfacing of Sheet

No. 1,519,256 to Heichert, Dated December 16, 1924.
No. 1,554,804 to Fox, Dated September 22, 1925.
No. 1,569,079 to Evans, Dated January 12, 1926.
No. 1,577,457 to Evans, Dated March 23, 1926.
No. 1,580,175 to Soderberg, Dated April 13, 1926.
No. 1,598,763 to Evans, Dated September 7, 1926.
No. 1,610,366 to Fox and Evans, Dated December 14, 1926.
No. 1,610,374 to Heichert and Evans, Dated December 14, 1926.
No. 1,629,502 to Hitchcock, Dated May 24, 1927.
No. 1,631,126 to Harrington, Dated June 7, 1927.
No. 1,657,206 to Evans, Dated January 24, 1928.
No. 1,660,330 to Fox, Dated February 28, 1928.
No. 1,671,718 to Harrington, Dated May 28, 1928.
No. 1,683,342 to Fox, Dated September 4, 1928.
No. 1,771,408 to Hitchcock, Dated July 29, 1930.

(Not Printed)

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[fol. 1296] **DEFENDANTS' EXHIBIT "W"**

Summary of Returns of Duplate, Made With Gelatine Adhesive, Made and Sold Prior to May 31, 1930, Subsequently Returned for Defects

(Not Printed)

NOTE.—It is Stipulated by all parties that Exhibit "W" contains the detail of returns of infringing product manufactured during the infringing period but returned after May, 1930, showing a returned feetage of 49,810 ft. 5 in. of a value of $83,561.42; and that Exhibit X contains the detail of credits to warehouses for replacements on account of defective infringing product manufactured and sold during the infringing period but replaced subsequent thereto, such replacements amounting to 26,679 ft. 9 in. and $72,060.42 in credits. The correctness of the data appearing in these Exhibits is not challenged, the sole issue between the parties being a question of law as to whether either or both are proper credits.

DEFENDANTS' EXHIBIT "X"

List of Allowances for Replacements, of Duplate Made With Gelatine Adhesive

(Not Printed)

DEFENDANTS' EXHIBIT "Y"

Computation of Costs of Sales

(Not Printed)

DEFENDANTS' EXHIBIT "Z"

Actual Computation of Alleged Profits and Losses

(Not Printed)

DEFENDANTS' EXHIBIT "AA".

STATEMENT SHOWING EFFECT OF CHANGES IN EXPERIMENTAL EXPENSE AND $150.00 PATENT EXPENSE NOT CLASSIFIED AS NON-OPERATING EXPENSE WHEN COMPILING DEFENDANT'S EXHIBITS Y & Z AND NOW CONSIDERED AS NON-OPERATING EXPENSE

	ORIGINAL AMOUNT USED	ADJUSTMENT	AMENDED TOTAL	PROFIT INCREASE OR DECREASE
Jan.& Feb. 1928	518.88	412.88†	106.65	
March "	323.94	49.32)	523.26	-
April "		150.00*)		-
May "	68.91	-	68.91	
June "	32.41	-	32.41	-
July "	68.80	-	68.80	-
October "	15.06	-	15.06	-
November "	167.79	287.44	455.23	-
December "	800.05	811.81	1,011.86	7.37
TOTAL	822.38	778.75	1,601.13	11.25
				14.49
	$ 2,818.22	$ 1,665.09	$ 3,883.31	$ 33.11
January 1929				
February "	417.93	-	417.93	-
March "	2,659.66	18.13†	2,641.53	.11 †
April "	539.64	-	539.64	-
May "	124.32	18.13†	106.19	7.15 †
July "	29.67	8.00	37.67	1.54
August "	2,498.91	-	2,498.91	-
September "	2,308.45	-	2,308.45	-
October "	1,988.18	-	1,988.18	-
December "	2,864.96	-	2,864.96	-
TOTAL	500.00†	747.27	247.27	18.31
	12,931.72	719.01	13,650.73	12.59
January 1930				
February "	7,300.59	920.35	8,220.92	732.85
March "	3,448.15	907.29	4,355.44	424.32
April "	3,562.02	3,090.02	6,652.04	603.12
May "	3,082.53	1,932.05	5,014.58	303.74
TOTAL	2,359.06	1,698.85 †	662.21	429.90 †
	19,752.35	5,152.84	24,905.19	1,634.13
TOTAL PROFIT INCREASE				$ 1,679.83

* Patent Expense

† In Red in Original Exhibit.

DEFENDANTS' EXHIBIT "BB".

STATEMENT OF SELLING EXPENSE ALLOWED
PITTSBURGH PLATE GLASS CO. BY DUPLATE CORPORATION,
AND EXPENSE INCURRED BY PITTSBURGH PLATE GLASS CO.

	YEAR 1928	YEAR 1929	1ST 5 MOS. 1930	TOTAL
Allowed P.P.G.Co. by Duplate as per accounting filed	85,746.55	105,300.18	29,668.55	220,715.28
Expense incurred by P.P.G.Co.	113,174.06	303,160.72	122,811.20	539,145.98
LOSS TO P.P.G.CO.				$318,430.70

DEFENDANTS' EXHIBIT "CC".

Collection of Papers Used in Illustration by the Witness.

(Not Printed.)

DEFENDANTS' EXHIBIT "DD"

STATEMENT OF DUPLATE SALES AND SALE OF PLATE GLASS FROM PITTSBURGH PLATE GLASS CO., GREIGHTON, TO DUPLATE

	1928			1929			1ST 5 MONTHS 1930		
	FEET	PRICE	AMOUNT	FEET	PRICE	AMOUNT	FEET	PRICE	AMOUNT
Duplate Sales	1,082,552	$1.9951	$2,159,795.32	2,306,106	$2.0303	$4,682,146.46	752,568	$1.6738	$1,259,672.85
Sales 1/8" Glass P.P.G.Co. to Duplate	3,600,212	$.41628	$1,498,706.90	5,206,609	$.40294	$2,097,975.89	1,483,222	$ .35045	$ 519,769.61

Exhibit R shows billed from Pittsburgh Plate Glass Co. to Duplate first 5 months of 1930 - 1,534,066 sq.ft. This statement shows 1,483,222 sq.ft. Exhibit R shows total billing, this statement shows only amount of glass used up to May 28, 1930 that was laminated, as at May 25, 1930, we changed from gelatin to casein adhesive. Exhibit R inventory May 30, 1930 includes laminated and unlaminated glass.

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DEFENDANTS' EXHIBIT "EE".

STATEMENT SHOWING PROFIT ON SALE OF 1/8" GLASS FROM PITTSBURGH PLATE GLASS COMPANY TO DUPLATE CORPORATION, ALLOWING CREDIT FOR SALE OF 1/4" PLATE GLASS TO CUSTOMERS, HAD DUPLATE NOT BEEN SOLD.

	1928	1929	1ST 5 MOS. 1930
If Duplate had not been sold the Pittsburgh Plate Glass Co. would have sold one sheet of glass to each foot of Duplate sold or	* 962,448	* 2,019,360	* 617,728
Less Net Sales to Fisher & Fleetwood	* 558,137	* 640,155	* 23,272
Balance	404,311	1,379,205	594,456
Sales of 1/8" Glass P.P.G.Co.to Duplate	3,600,212	5,206,609	1,483,822
Feet of 1/8" on which to compute Profit	3,195,901	3,827,404	888,778
Sales Price Average	$ .41628	$ .40294	$ .35045
Cost as filed	$ .34432	$ .31380	$ .35730
Profit or Loss per foot	$ .07196	$ .08914	$ .00687†
Profit or Loss on above	$ 229,977.04	$ 341,174.79	$ 6,106.81†
TOTAL NET PROFIT			$ 565,046.61

* Sales of Duplate in square feet less Returns.

† In Red in Original Exhibit.

DEFENDANTS' EXHIBIT "FF"

PROFIT ON SALE OF 1/8" GLASS FROM PITTSBURGH PLATE GLASS CO., CHEIGHTON, TO DUPLATE CORP'N.

	1928	1929	1ST 6 MOS. 1930	TOTAL
Footage	5,600,512	8,806,809	1,485,222	
Sales Price Average	$ .41828	$ .40894	$ .35045	
Cost as Filed	$ .34452	$ .31360	$ .35720	
Profit or Loss per Foot	$ .07196	$ .08914	$ .00687†	
Profit or Loss on above	$ 359,071.85	$484,117.13	$ 10,189.72†	$ 712,998.65

(ILLUSTRATION ONLY) PROFIT COMPUTED EXCLUDING ITEMS WHICH TRIPLEX COMPANY CLAIMS SHOULD BE EXCLUDED

	1928	1929	1ST 6 MOS. 1930	
Items which Triplex claims should be excluded:				
Allowance for use of Patented Process	$ .12874	$ .09907	$ .09694	
Federal Income Tax	$ .02867	$ .02194	$ .01596	
Cutting Loss	$ .01848	$ .01681	$ .02590	
Total Items thus excluded	$ .16829	$ .13782	$ .13879	
Cost as filed	$ .34452	$ .31360	$ .35720	
Cost per Triplex Claim	$ .18145	$ .17658	$ .22051	
Sales Price	$ .41828	$ .40294	$ .35045	
Profit per foot per Triplex Claim	$ .23683	$ .22636	$ .12992	
Profit per Triplex Claim in Dollars	$ 845,809.79	$ 1,178,568.01	$ 192,700.20	$2,216,778.00

ABOVE PROFIT REDUCED BY DEDUCTING FEET OF PLATE GLASS WHICH PITTSBURGH PLATE GLASS CO. WOULD HAVE SOLD IF NO DUPLATE HAD BEEN SOLD (SEE EXHIBIT EE).

	1928	1929	1ST 5 MOS.1930	
Feet of 1/4" Plate Glass which would thus have been sold	404,311	1,379,805	594,456	
Profit per foot per Triplex Claim	$ .23485	$ .22636	$ .12992	
Said Profit in Dollars	$ 94,978.44	$ 312,196.84	$ 77,231.72	$ 484,381.00
TOTAL PROFIT				$1,732,897.00

STATEMENT OF DUPLATE-CORPORATION LOSS

	1928	1929	1ST 5 MOS. 1930	
Accounting as originally filed Loss	$ 560,548.05†	$ 434,326.60†	$ 22,070.86†	$1,016,945.49†
Less Items not considered Operating Cost	$ 7,148.48	$ 31,557.90	$ 31,629.67	$ 70,336.05
" Admitted Error Interest on Investment 1928	$35,000.00			$ 35,000.00
TOTAL DEDUCTIONS	$42,140.48	$ 31,557.90	$ 31,629.67	$ 105,336.05
Profit & Loss	$518,407.55†	$402,768.70†	$ 9,558.81	$ 911,617.44†
Plus Returns received since 6/1/30				$ 83,561.42†
" Allowances " "				$ 72,060.42†
TOTAL LOSS				$1,067,239.28†

† In Red in Original Exhibit.

DEFENDANTS' EXHIBIT "GG"

STATEMENT SHOWING GROSS SALES AND COST OF SALES OF DUPLATE FOR PERIOD - YEARS 1928-1929-1ST FIVE MONTHS 1930

	1928			1929			1ST FIVE MONTHS 1930			TOTAL	
	SQ. FT.	PRICE PER FT.	AMOUNT	SQ. FT.	PRICE PER FT.	AMOUNT	SQ. FT.	PRICE PER FT.	AMOUNT	SQ. FT.	AMOUNT
Sales	1,088,532	1.9951	2,159,795.32	2,306,106	2.0363	4,682,145.45	732,568	1.6736	1,259,672.86	4,141,206	8,101,614.63
Cost of Production	1,088,532	2.4740	2,678,202.87	2,306,106	2.3949	5,884,918.16	732,568	1.8611	1,350,114.04	4,141,206	9,013,232.07
Profit or Loss	1,088,532	.4789†	518,407.55†	2,306,106	.1746 †	402,768.70†	732,568	.6127	9,558.81	4,141,206	911,617.44 †
Plus Returns Received since 6/1/30											83,561.42 †
Plus Allowances since 6/1/30											72,060.42 †
											$1,067,239.28 †

† In Red in Original Exhibit.

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DEFENDANTS' EXHIBIT "HH".

PROFIT ON CERTAIN OF DUPLATE SALES, IF AVERAGE COST IS APPLIED TO INDIVIDUAL SALES

	1928	1929	1ST 5 MOS. 1930	TOTAL
Profit	3,408.46	130,829.35	48,751.80	182,987.01
Plus Profit due to Allowance of Additional Expenses as Non-Operating	33.11	12.59	1,634.13	1,679.83
	3,439.57	130,841.94	50,385.33	184,666.84
Less Proportion of Allowances since 6/1/30				18,231.29
				$166,435.55

STATEMENT OF ITEMS EXCLUDED FROM COST BY ACCOUNTING AS CLAIMED BY TRIPLEX COMPANY

	PLATE GLASS STOCK LOSS		PLATE GLASS CUTTING LOSS		ASSEMBLY DEPT. LOSS	
	FEET	AMOUNT	FEET	AMOUNT	FEET	AMOUNT
1928	244,189	$104,571.65	41,995	$ 18,602.12	14,130- 3	$ 15,288.66
1929	179,401	$ 75,109.98	130,106	$ 58,980.95	8,869	$ 8,932.16
1930	1,628	$ 561.65	75,905	$ 27,184.86	1,732	$ 1,668.35
	425,218	$180,243.28	248,006	$ 98,767.93	24,231- 3	$ 25,889.15

	PYRALIN EXAMINATION LOSS		EDGING DEPT. LOSS		DUPLATE STOCK LOSS	
	FEET	AMOUNT	FEET	AMOUNT	FEET	AMOUNT
1928	-	-	126,816- 3	$155,854.32	22,403- 6	$ 28,423.15
1929	163,804	$ 46,250.10	78,471	$104,388.25	39,861- 6	$ 54,075.15
1930	39,238	$ 41,139.37	8,902	$ 10,448.74	1,078	$ 1,253.38
	203,042	$ 87,389.47	114,189- 3	$270,591.31	63,343	$ 83,751.68

	EXTRAORDINARY EXPENSE		EXPERIMENTAL EXPENSE		GENERAL EXPENSE		TRIPLEX SUIT & LEGAL EXPENSE		COMMISSION PITTSBURGH PLATE GLASS CO.	
	FEET	AMOUNT	FEET	AMOUNT	FEET	AMOUNT	FEET	AMOUNT	FEET	AMOUNT
1928,	-	-	-	49,973.69	-	547.82	-	1,532.17	-	85,746.56
1929	-	17,652.66	-	48,447.16	-	715.65	-	14,421.80	-	105,300.18
1930	-	3,621.16	-	41,308.45	-	-	-	4,397.48	-	29,696.22
	-	21,273.82	-	139,729.30	-	1,263.47	-	20,351.45	-	220,742.95

DEFENDANTS' EXHIBIT "II".

(PLAINTIFF'S EXHIBITS 8 - 8-A & 10)

ASSEMBLY & PRESSING DEPT. LOSS		PRESSING DEPT. LOSS		CARBITOL DEPT. LOSS	
FEET	AMOUNT	FEET	AMOUNT	FEET	AMOUNT
-	-	457,357- 2	$ 537,392.74	-	-
-	-	262,858	$ 347,843.67	1,910	$ 2,253.11
13,068	$ 13,816.12	10,570	$ 11,505.23	-	-
13,068	$ 13,816.12	730,785- 2	$ 896,741.64	1,910	$ 2,253.11

SALVAGED OR RECLAIMED STOCK TAKEN INTO POSSESSION		COMPANY'S ESTIMATED COST OF REJECTS CHARGED TO PROCESS COST LATER DEDUCTED		ADJUSTMENTS RESULTING FROM RE-VALUATIONS OF OPENING AND CLOSING INVENTORIES BASED ON ADJUSTED COST	
FEET	AMOUNT	FEET	AMOUNT	FEET	AMOUNT
31,149- 7	$ 49,401.77	-	-	-	$ 44,519.65
193,089	$104,127.02	-	$ 60,334.61	-	$100,116.91
31,651	$ 8,707.04	-	-	-	$ 6,799.11
255,889- 7	$162,235.83	-	$ 60,334.61	-	$151,435.65

DONATIONS		CREDIT FOR RETURNS NOT ALLOWED		ALLOWANCES SINCE 6/1/30		TOTAL	
FEET	AMOUNT	FEET	AMOUNT	FEET	AMOUNT	FEET	AMOUNT
-	1,875.60	*	175,736.30	-	-	938,040-11	1,267,465.36
-	7,500.00	*	452,432.90	-	-	1,057,869- 6	1,382,832.56
-	1,875.00	*	116,498.09	-	72,060.42	185,772	392,540.65
-	11,250.00	*	728,717.38	-	72,060.42	2,179,682- 5	3,242,838.57

[fol. 1306] **DEFENDANTS' EXHIBIT "JJ"**

(Not Printed)

DEFENDANTS' EXHIBIT "KK"

Statistical Issue "Automotive Industries"

Table—"New-Car Registrations", Contained in Exhibit "KK".
Schedule—"Average Retail Price of Passenger Cars", Contained in Exhibit "KK".
Schedule—"Average Retail Price of Trucks", Contained in Exhibit "KK".
Table—"Per Cent. of Total Car Sales by Leading Groups", Contained in Exhibit "KK".

(Not Printed)

[fol. 1307] Clerk's certificate to foregoing transcript omitted in printing.

Defendants' Original Exhibit
"O" before Master.

UNITED STATES OF AMERICA
EASTERN DISTRICT OF PENNSYLVANIA
THIRD JUDICIAL CIRCUIT
Sct.

I, Wm. P. Rowland, Clerk of the United States Circuit Court of Appeals for the Third Circuit, DO HEREBY CERTIFY [redacted] the attached papers are Defendants' Master's Exhibit O, as filed in this Court in the cases of Duplate Corp., et al. vs. Triplex Safety Glass Company of North America, No. 5606; and vice versa on cross appeal, No. 5626, which was not reproduced in the printed record.

[redacted]

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the seal of the said Court, at Philadelphia, this 29th day of January, in the year of our Lord one thousand nine hundred and thirty-six and of the Independence of the United States the one hundred and sixtieth.

W. P. Rowland
Clerk of the U. S. Circuit Court of Appeals, Third Circuit.

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RECAPITULATION OF PLANT OPERATING LOSSES

GLASS			POL. PLATE FEET	DUPLATE FEET	AMOUNT
Sheet 1	Jan. & Feb.	1928	-	809	895.16
" 2	March	"	10-2-10	274-2	390.69
" 3	April	"	-	528-5	859.77
" 4	May	"	30-2	3030-3	5,135.12
" 5	June	"	468-0	11299-6	13,968.15
" 6	July	"	984-0	98367	134,944.74
" 7	August	"	-	141234-2	171,275.91
" 9	September	"	92038	138752	222,656.26
" 10	October	"	58368	125666	198,795.73
" 11	November	"	24938	61044-3	89,559.96
" 12	December	"	129284	37368	99,413.24
	Total	"	286120-4-10	617772-9	$931,292.73
" 13	January	1929	2298	105136	167,343.58
" 14	February	"	5462	108546	174,770.08
" 15	March	"	2905	54544	110,448.91
" 16	April	"	28325	9947	26,559.70
" 17	May	"	14377	8995	18,480.96
" 18	June	"	7759	15005	22,448.33
" 19	July	"	15319	8312	19,654.17
" 20	August	"	27304	33941	52,205.08
" 21	September	"	12645	9534	16,626.17
" 22	October	"	18715	11335	19,673.99
" 23	November	"	10568	8675	14,607.80
" 24	December	"	7071	14192	22,313.96
	Total	"	313748	388162	$665,827.98
" 25	January	1930	29004	9518	20,651.95
" 26	February	"	16177	7350	13,752.76
" 27	March	"	15916	8374	14,450.94
" 28	April	"	10327	4943	8,976.96
" 29	May	"	6109	5171	7,684.17
	Total	"	77533	35350	$65,516.78

RECAPITULATION

Year 1928	286120	617772-9	$931,292.73
" 1929	313748	388162	$665,827.98
" 1930	77533	35350	$ 65,516.78
	677401	1041284	$1,662,637.49

Unlaminated Glass Loss in	1928	1929	1930	TOTAL
Polished Plate Feetage	286120	313748	77533	677401
Laminated Glass Loss in Polished Plate Feetage	1235545	776324	70700	2082569
TOTAL	1521665	1090072	148233	2759970

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PRODUCTION LOSS ANALYSIS - GLASS

JANUARY AND FEBRUARY 1928

Losses:-	Pol. Plate Feet	Duplate Feet	Price	Amount
Due to low production and introduction of new product, shrinkage and cutting loss also Assembly operating loss transferred with raw materials to the Pressing Department.				
A- Pressing Department:-				
Operating Loss		187 ft.	1.28260	239.85
Edging Department:-				
Operating Loss		22 ft.	2.51420	55.31
Finished Stock:-				
Loss in Stock - None reported		-		

Inventories:-

Pol. Plate Stock	194 Ft.
Edging Department	136 Ft.

Total		209	295.16

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PRODUCTION LOSS ANALYSIS - GLASS

MARCH 1928

Losses:-	Pol. Plate Feet	Duplate Feet	Price	Amount
No record of polished plate glass broken in stock. Included with transfer of raw materials and included with Assembly operating loss.	10-2-10		.32280	3.31
Pressing Department:-				
Operating Loss		220-4 ft.	1.23130	271.30
Edging Department:-				
Operating Loss		53-10 ft.	2.15640	116.09

Finished Stock Loss:-
None recorded in March 1928

Inventories:-

Pol. Plate Stock	218-0-0	ft.
Pressing Dept.	44-11-0	"
Edging Dept.	11-3-4	"
Duplate Stock Account	151-5-7	"
Smooth Edge Work	424	In.
Polished " "	424	"

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Total	10-2-10	274-2 ft.		390.79

G3107

PRODUCTION LOSS ANALYSIS - GLASS

APRIL 1928

		Pol. Plate Feet	Duplate Feet	Price	Amount
Losses:					
Polished plate glass broken in stock and cutting loss included with Assembly operating loss.					
Assembling Department					
Operating Loss			12-10	.64800	8.32
Pressing Department					
A Operating Loss	7-6				
A-1 Operating Loss	335-6				
A-2 Operating Loss(Multiple Press)	4-6		347-6	1.32400	460.09
Edging Department					
A Operating Loss	82-3				
A-1 Operating Loss	72-4				
Inventory Adjustment	13-3		168-1	2.18970	368.05
Edgework					
Smooth Edges					23.31
Inventories					
Polished Plate Stock	1420-0 Ft.				
Pressing Dept.	92-9 "				
Edging Dept.	64-7 "				
Duplate Stock	58-7 "				
Smooth Edgework	1052 In.				
Polished Edgework	1052 "				
	Total	-	528-5	-	859.77

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CONFIDENTIAL

PRODUCTION LOSS ANALYSIS - GLASS

MAY 1928

			Pol. Plate Feet	Duplate Feet	Price	Amount
Losses:-						
A-	Pol.Plate Breakage-Assembly	29-2				
A-1	Pol.Plate Breakage-Assembly	1-0	30-2		.34350	10.38
Assembly Department:-						
	Operating Shrinkage			38-5	.68700	26.40
Pressing Department:-						
B-B1	Operating Shrinkage	2500-11				
	Inventory Adjustment			2377-2	1.41630	3366.77
Edging Department:-						
C-	Operating Shrinkage	233-3				
C-1	Operating Shrinkage	362-1				
C-2	Operating Shrinkage	29-0				
	Inventory Adjustment	9-8		614-8	2.45380	1508.27
Edgework:-						
	Smooth					2.20
	Polished					219.10
Stock Loss:-						
	None reported this month					
Inventories:-						
	Pol. Plate Stock	5265-0 Ft.				
	Assembling Dept.	226-0 "				
	Pressing Dept.	135-4 "				
	Edging Dept.	2228-6 "				
	Rough Edgework	1800 In.				
	Smooth Edgework	2240 "				
	Polished Edgework	79332 "				

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Total		30-2	3030-3	5133.12

PRODUCTION LOSS ANALYSIS - GLASS

JUNE 1928

			Pol. Plate Feet	Duplate Feet	Price	Amount
Losses:						
	Polished Plate Glass broken in Stock		468-0		.33358	156.12
Assembly Department:						
A	Operating Shrinkage	61-2				
A-1	Operating Shrinkage	83-0		144-2	.66954	96.52
Pressing Department:						
B	Operating Shrinkage	4072-4				
B-1	Operating Shrinkage	5-2				
B-2	Operating Shrinkage	3578-1				
B-3	Operating Shrinkage	1364-7				
B-4	Operating Shrinkage					
	Inventory Adjustment	336-4		9363-2	1.11060	10397.80
Edging Department:						
	Operating Shrinkage			1792-2	1.66170	2978.05
Edgework:						
	Smooth					1.09
	Polished					338.57
Inventories:-						
	7/64" Pol. Plate Stock	2176 Ft.				
	Assembled Glass	586-1				
	Pressed Glass	1273-8				
	Edging Department Glass					
D	Pressed Glass Transferred to E. D. Unfinished	2212-8 Ft.				
D-1	Pressed glass transferred to Edging Department	3442-6				
D-2	Pressed Glass Transferred to Edging Department	2056-11				
D-3	Pressed Glass transferred to E. D. Ford City	779-2				
	Physical Inventory	29-4				
		8520-7				
Finished Stock - Duplate						
E	Physical Inventory	4094-6 Ft.				
E-1	Physical Inventory	6835-2				
E-2	Physical Inventory	261-0				
E-3	Physical Inventory	3192-9				
E-4	Physical Inventory	169-2				
E-5	Physical Inventory	3016-7				
E-6	Physical Inventory	3638-11				
E-7	Physical Inventory	1287-6				
	Physical Inventory	7741-3				
		30236-10				
Edgework:-						
	Polished Edgework	530652 In.				
			468-0	11299-6		13968.15

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PRODUCTION LOSS ANALYSIS - GLASS

JULY 1928

		Pol. Plate Feet	Duplate Feet	Price	Amount
Polished Plate Glass broken in stock		984		.36678	360.91
Cutting Loss not shown separately on Form "J" for the month of July and was included with Polished Plate transfers to the Assembly Department where it was later absorbed by this Department					
Assembly Dept. Loss:					
A Pol. Plate Shrinkage-Turn #1	87-6-9				
B " " " " #2	48-8-2				
C " " " " #3	72-7-10				
D " " Loss cutting rejects from Assemb.	2560-1-8				
Inventory adjustment	15-11-7		2735	.73518	2047.48
Pressing Dept. Loss:					
E Pressing Rejects - Turn #1	18350-8-10				
F " " - " #2	16180-6-5				
G " " - " #3	17730-6-0				
Inventory adjustment	1419-5-9		53681	1.07590	57755.66
Edging Dept. Loss:					
H Edging Rejects - Turn #1	3775-8-5				
I " " " #2	7291-6-1				
J " " " #3	6683-5-5				
Inventory adjustment			20394	1.53410	31287.71
Duplate Loss in Finished Stock: This Duplate transferred from the Edging Department to Finished Stock and after final inspection was rejected for various defects. Charged to Stock at value during previous months and loss absorbed during month of July 1928.			21527	1.84876	39798.41
Edgework:					
Smooth					44.75
Polished					3649.82
Inventories					
Polished Plate Stock	52092 Ft.				
Assembly Dept.	10792-4 Ft.				
Pressing Dept.	2035-7 "				
Edging Dept.	20393-1 "				
Duplate Stock	29901-1 "				
Polished Edgework	253798 In.				
1315 Total		984	98387		134944.74

PRODUCTION LOSS ANALYSIS - GLASS

AUGUST 1928

		Pol. Plate Feet	Duplate Feet	Price	Amount
A	Pol. Plate Cutting Loss not shown separately on Form "J" for the month of August. Loss Cutting and breakage (14070 ft.) included with Pol. Plate Transfer (682367 Ft.) to Assembly Department where it was later absorbed by this Department				
	Assembly Department Loss:-				
B	Assembled Glass Shrinkage Turn #1	129-11-3			
	" " " " #2	97-10-7			
	" " " " #3	133-2-5			
	Pol.Plate Loss 14070 Ft.-Duplate	7035-0-0			
	Inventory Adjustment	800-11-9	8197	.74136	6076.93
	Pressing Department Loss:-				
C	Shrinkage Turn #1	22877-9-8			
	" " #2	25551-0-11			
	" " #3	25545-7-7			
D	Pressed Glass rejected at Edging	7865-11-1			
	" " " " "F.City	11053-8-4			
	Inventory Adjustment	1155-9-5	94049-11	1.08650	102185.23
	Edging Department Loss:-				
E	Edged Glass Shrinkage Turn #1	11334-4-0			
	" " " " #2	15905-6-3			
	" " " " #3	10009-10-0			
	Inventory Adjustment	1737-6-9	38987-3	1.57340	61342.54
	Edgework:-				
	Rough				
	Smooth				1563.65
	Polished				80.68
					26.88
	Inventories:-				
	Assembled Glass	858 Ft.			
	Pressed Glass	3036 "			
	Edged Glass	16675 "			
	Finished Glass Duplate	24958 "			
	Rough Edgework	501816 In.			
	Smooth Edgework	276206 "			
	Polished Edgework	252024 "			
	Total		141234-2		171275.91

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PRODUCTION LOSS ANALYSIS - GLASS

Ledger Account of Polished Plate - September 1928

Inventory 9/1/28	95532 Ft.		
Received from P.P.G.Co.	809178 "		
Received from Reclaiming Operation	41856 "		
Total		946566 Ft.	
Deduct Inventory 9/30/28		131600 "	
Glass transferred from P.P. Stock - Sept.		814966 Ft.	
Deduct glass used in Assembly - Form "J"		722928	
Total P.P. Glass loss - Sept. - Form "J"			92038 Ft.

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Record of Physical Inventory - September 30th, 1928

Polished Plate Stock

Sheet A	P.P. glass stock at Cutting Operation	18957 Ft.		
B	P.P. glass stock at Cutting Operation	54885 "	73842 Ft.	
C	P.P. glass stock at Assembly Department	2183		
D	P.P. glass stock at Assembly Department	611		
E	P.P. glass stock at Assembly Department	918	3712 Ft.	
F	P.P. glass stock at Salvage Department	13507		
G	P.P. glass stock at Salvage Department	15375	28882 Ft.	
H	P.P. glass stock in transit from Cutting operation to Assembly Dept. not included in Cutting operation inventory		25164 Ft.	
9/30/31	Total physical inventory as recorded			131600 Ft.
	Inventory as shown on Form "J"			131600 Ft.

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PRODUCTION LOSS ANALYSIS

SEPTEMBER 1928

		Pol. Plate Feet	Duplate Feet	Price	Amount
Cutting Operation Loss:-					
P.P. glass returned from Assembly - Actual size	103795				
P.P. glass salvage from Assembly Returns	55559				
	48236				
Glass broken in handling stock	977				
Loss Cutting P.P. glass to order size - recorded	13000				
Inventory adjustment	29735				
	43802				
Total P.P. glass loss		92038		.39512	36366.05
Pressing Department Loss:-					
A - Operating Shrinkage	39980				
B - " "	31268				
C - " "	31638				
" " & Inventory adjustment	10998		113904	1.13660	129463.95
Edging Department Loss:-					
E - Operating Shrinkage	4132				
F - " "	6345				
G - " "	5377				
I - " " (Ford City)	5766				
Inventory adjustment	3208		24828	2.23389	55463.25
Edgework:-					
Rough					1266.93
Smooth					55.18
Edged					40.90
Inventories:-					
Polished Plate Stock - Refer to Pol. Plate Analysis attached.					
J - Assembled Duplate	3144 Ft.				
K - Pressed "	2908				
L - Edging Dept. Duplate	25931				
M - Finished Stock "	29209				
Rough Edge Work	528246 In.				
Smooth " "	454846 "				
Polished Edge Work	444530 "				
Total		92038	138732		222656.26

1318

1055

PRODUCTION LOSS ANALYSIS - GLASS

OCTOBER 1928

		Pol. Plate Feet	Duplate Feet	Price	Amount
Polished Plate Cutting Loss reported		23801		.44294	10536.23
Polished Plate Stock Loss					
A Pol. Plate rejected by Assembly reported Period 10/1 to 10/18/28	5629				
A Pol. Plate rejected by Assembly	4000				
B Assembly Shrinkage Duplate	2311				
Inventory Adjustment	2627	14567		.44294	6452.32
Pressing Dept. Loss					
C Pressing Dept. Shrinkage - Turn #1	34127				
D Pressing Dept. Shrinkage - Turn #2	33125				
E Pressing Dept. Shrinkage - Turn #3	32888				
Inventory adjustment	810		99630	1.21459	120889.04
Edging Dept. Loss					
F Edging Shrinkage - Turn #1	6829				
G " " " #2	9051				
H " " " #3	7992				
I " " Ford City	2264		26136	2.05833	53796.64
Edgework					
Rough					1064.77
Smooth					54.62
Polished					12.11
Inventories					
J Assembled Glass "Duplate"	834 Ft.				
K Pressed " "	2297 "				
L Edged " "	19250 "				
M Finished " "	53063 "				
Rough Edgework	772104 In.				
Smooth "	759920 "				
Polished "	754796 "				
1319 Totals		38368	125666		192795.73

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PRODUCTION LOSS ANALYSIS - GLASS

NOVEMBER 1928

			Pol. Plate Feet	Duplate Feet	Price	Amount
Polished Plate Loss						
A-1	Cutting Loss - Cutting Dept.	5086				
A-2	" " " "	6878				
	" " " " Misc.	304	12268		.44740	5488.76
B-1	Stock Loss Reclaiming A.D. Rets	12282				
B-2	Stock Loss Breakage	388	12670		.44740	5668.62
Pressing Dept. Loss						
C-1	Pressed Glass Shrinkage	271				
C-2	" " " Southwark Press	732				
C-3	Pressing Shrinkage Turn #1	4665				
C-4	" " " #2	15893				
C-5	" " " #3	12260				
C-6	Loss Reclaiming Set Aside	379				
C-7	" " " "	1122				
C-8	Pressed Glass Rejects from E.D.	10223				
C-9	Pressed Glass Shrinkage - Saw Cutting	231				
C-10	Pressed Glass Shrinkage	51				
C-11	" " Rejects from E. D.	82				
C-12	Assembly Shrinkage	45				
C-13	" "	1280				
C-14	" "	893				
	Pressed Glass Rejects from Edging	2997		51124	1.18210	60434.07
Edging Dept. Loss						
D-1	Edging Shrinkage	4670-8				
D-2	" "	3586-7				
D-3	" "	863-7				
D-4	" "	39-5				
	Inventory Adjustment	17-3		9177-6	1.78068	16342.16
Finished Duplate Loss						
E-1	Loss in Stock			742-9	1.83970	1366.44
Edgework						
	Rough					211.83
	Smooth					37.38
	Polished					10.70
Inventories						
F	Polished Plate Stock	147987 Ft.				
G	Assembled Duplate	1079-4				
H	Pressed Duplate	571-7				
I	E. D. Duplate	8867-3				
J	Duplate Finished Stock	39077-11				
	Rough Edgework	293750 In.				
	Smooth Edgework	293750 "				
	Polished Edgework	293750 "				
	Total		24938	61044-3		89559.96

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1057

PRODUCTION LOSS ANALYSIS - GLASS

DECEMBER 1928

		Pol. Plate Feet	Duplate Feet	Price	Amount
Cutting Loss - 5926 Sq.Ft. Pol. Plate					
A- Loss Cutting Pol. Plate-Oversize	2444				
B- Loss Cutting Pol. Plate Reclaimed Glass Stock	3482	5926		.42405	2512.92
Operating Stock Loss - 5136 Sq.Ft. Pol. Plate					
C- Stock Loss on P.P. Rejects from Assembly to Cutting	2907				
D- Stock Loss on P.P. Broken in Cutting Dept.	547				
E- Stock Loss on P.P. Broken in Assembly Dept.	1592				
Inventory Adjustment	90	5136		.42405	2177.92
Stock Loss - Transferred to General Books 118222 Sq.Ft. Polished Plate recovered by separation from Duplate rejects and returned to Polished Plate stock during previous months. Found worthless in December and charged off at value used to set up in Stock Account.		118222		.42405	50131.98
Pressing Department Shrinkage					
F- Examiners Report of Productions and Losses	30218				
G- Examiners Report of Saw Cutting-Pressing Dept.	2163				
H- Examiners Report of Production - Research	191		32572	1.10450	35975.77
Edging Department Shrinkage					
I- Examiners Report of Production	4559				
Inventory Adjustment	104		4663	1.77820	8291.67
Duplate Stock Loss					
Inventory Adjustment			133	1.79383	238.58
Edgework					
Rough					73.37
Smooth					8.64
Polished					2.39

Inventories

Pol. Plate Glass	44666 Ft.
Assembling Dept.	4171 "
Pressing Dept.	3207 "
Edging Dept.	17251 "
Duplate Stock	75590 "
Rough Edgework	764498 In.
Smooth Edgework	686436 "
Polished Edgework	685160 "

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Total	129284	37368		99413.24

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PRODUCTION LOSS ANALYSIS - GLASS

JANUARY 1929.

			Pol. Plate Feet	Duplate Feet	Price	Amount
Polished Plate Loss						
	Cutting Dept. Shrinkage - Form "A"	42652				
	Assembly Dept. Rejects - " "A"	18689				
A -	Glass broken in Stock - Pol. Plate	957	62298		.41851	26072.53
Pressing Dept. Loss						
B -	Pressing Shrinkage - Plant #1 - 1	36296				
C -	Pressing Shrinkage - Plant #1 - 2	37488				
D -	Pressing Shrinkage - Plant #1 - 3	6792				
E -	Pressing Shrinkage - Plant #2 - 1	1144				
F -	Pressing Shrinkage - Plant #2 - 2	550				
G -	Pressing Shrinkage - Block Size Duplate	508				
H -	Pressing Shrinkage - Block Size Duplate	477				
I -	Pressing Shrinkage - Saw Cutting Operation	527				
J -	Pressing Shrinkage - Small Autoclave	689				
K -	Loss in Pressed Glass Stock	2183				
	Inventory Adjustment	4098		90752	1.2695	115209.66
Edging Dept. Loss						
L -	Edging Shrinkage - Turn #1	1376				
M -	" " - " #2	4570				
N -	" " - " #3	3963		9909	1.88224	18651.17
	Loss in Stock - Unedged			3326	1.79400	5966.84
	Loss in Stock - Edged			1149	1.84419	2118.97
Edgework						
	Rough					16.26
	Smooth					2.54
	Polished					.86
Inventories						
O -	Pol. Plate Glass Stock - Thin	40497 Ft.				
P -	Assembled Glass - Duplate	2463 "				
Q -	Pressed " - "	886 "				
R -	Edged " - "	22043 "				
S -	Finished " - " Unedged	36347 "				
T -	" " - " Edged	21028 "				
	Rough Edgework	396805 In.				
	Smooth Edgework	386418 "				
	Polished Edgework	386418 "				
	Total		62298	105136		168038.83

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PRODUCTION LOSS ANALYSIS - GLASS

FEBRUARY 1929

		Pol. Plate Feet	Duplate Feet	Price	Amount
Polished Plate Loss					
Cutting Department Shrinkage (Form "A")	16657				
Loss in Stock - Returns from Assembly	16424				
A- Loss in Stock Breakage	317				
Assembly Shrinkage	8105				
Inventory Adjustment	4959	46462		.42505	19748.58
Pressing Department Loss					
B- Pressing Shrinkage #1 Turn #1 Plant	21826				
C- Pressing Shrinkage #2 Turn #1 Plant	24502				
D- Pressing Shrinkage #1 Turn #2 Plant	11719				
E- Pressing Shrinkage #2 Turn #2 Plant	16213				
F- Pressing Shrinkage #3 Turn #2 Plant	7989				
G- Pressing Shrinkage-Southwark Press	108				
Pressing Shrinkage	10013		92370	1.32920	122778.20
Edging Department Loss					
H- Edging Shrinkage #1 Turn #1 Plant	1144				
I- Edging Shrinkage #2 Turn #1 Plant	1541				
J- Edging Shrinkage #3 Turn #1 Plant	1027				
K- Edging Shrinkage #1 Turn #2 Plant	2938				
L- Edging Shrinkage #2 Turn #2 Plant	3317				
M- Edging Shrinkage #3 Turn #2 Plant	2577				
N- Edging Shrinkage - Glass broken in Packing Room	185				
Inventory adjustment	2806		15535	1.98438	30827.31
Loss in Stock - Duplate					
O- Duplate rejected after being passed to stock			641	1.90709	1222.45
Edgework					
Rough					156.45
Smooth					27.62
Polished					9.47
Inventories					
P- Polished Plate Stock	110806 Ft.				
Q- Assembled Duplate	2297 "				
R- Pressed Duplate	6081 "				
S- Edging Department Duplate	28834 "				
T- Finished Stock Duplate Unedged	41565 "				
U- Finished Stock Duplate Edged	27427 "				
Rough Edgework	409639 In.				
Smooth "	407993 "				
Polished "	407993 "				
	Total	46462	108546		174770.08

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PRODUCTION LOSS ANALYSIS - GLASS

MARCH 1929

		Pol. Plate Feet	Duplate Feet	Price	Amount
Polished Plate Loss:-					
A - Cutting Loss #1 Turn #1 Plant	4019				
B - Cutting Loss #2 Turn #1 Plant	9496				
C - Cutting Loss #3 Turn #1 Plant	2571				
D - Stock Loss #2 Plant	52				
Cutting Loss	15642	31780		.42556	13524.89
E - Assembly Shrinkage - Returns	2382				
F - Assembly Shrinkage - Returns	10831				
G - Assembly Shrinkage - Returns	10753				
H - Assembly Shrinkage - Returns	2164				
I - Assembly Shrinkage - Returns	3891				
Assembly Shrinkage - Operating	1104	31125		.42558	13246.15
Pressing Department Loss:-					
J - Pressing Shrinkage #1 Turn #1 Plant	8265				
K - Pressing Shrinkage #2 Turn #1 Plant	7610				
L - Pressing Shrinkage #3 Turn #1 Plant	3991				
M - Pressing Shrinkage #1 Turn #2 Plant	6586				
N - Pressing Shrinkage #2 Turn #2 Plant	6736				
O - Pressing Shrinkage #3 Turn #2 Plant	1127				
P - Pressing Shrinkage Represses	1211		35526	1.43330	50919.42
Edging Department Loss:-					
Q - Edging Shrinkage #1 Turn	2033				
R - Edging Shrinkage #2 Turn	14056				
S - Edging Shrinkage #3 Turn	2915				
T - Edging Shrinkage - Refinished	13		19018	1.71154	32550.16
Edgework:-					
Rough					180.68
Smooth					21.31
Polished					6.30
Inventories:-					
U - Polished Plate Stock	128271				
V - Assembled Duplicate	3700				
W - Pressed Duplate	3314				
X - Edging Department Duplate	28170				
Y - Finished Duplate Unedged	41732				
Z - Finished Duplate Edged	21328				
Rough Edge Work	397946 In.				
Smooth Edge Work	369068 In.				
Polished Edge Work	369007 In.				
Total		82305	84544		110447.91

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PRODUCTION LOSS ANALYSIS - GLASS

APRIL 1929

			Pol. Plate Feet	Duplate Feet	Price	Amount
Polished Plate Loss						
A	Cutting Loss per recap Sheet	9488)				
B	" " recutting	687)	10175			4209.18
C	Assembly Shrinkage - Loss in stock	294)				
D	Assembly Shrinkage - Rejects	9070)				
	" " Inv. adj.	8786)	18150		.41368	7508.26
Pressing Dept. Loss						
E	Pressing Shrinkage #1 Turn	1807				
F	" " #2 "	1418				
G	" " #3 "	860		4085	1.29360	5284.36
Edging Dept. Loss						
H	Edging Shrinkage			5510	1.61344	8890.06
Loss in Finished Stock						
I	Finished Stock Rejects			352	1.76428	621.03
Edgework						
	Rough					40.47
	Smooth					4.77
	Polished					1.57

Inventories			
J	Polished Plate Stock	102904	Ft.
K	Assembled Duplate	1464	"
L	Pressed "	161	"
M	Edging Dept. "	31831	"
N	Finished "	23546	"
O	" "	42176	"
	Rough Edgework	361382	In.
	Smooth "	329080	"
	Polished "	329080	"

1325

Total	28325	9917		26559.70

2901

PRODUCTION LOSS ANALYSIS - GLASS

MAY 1929

			Pol. Plate Feet	Duplate Feet	Price	Amount
Polished Plate Stock						
A	Cutting Loss - #1 Plant	5024				
A	" " #2 "	3492	8516		.42214	3594.90
B	Assembly Shrinkage-#1 Plant	2113				
B	" " #2 "	1427				
C	" " Recut	49				
	Inventory Adjustment	2272	5861		.42214	2474.14
Pressing Dept. Loss						
E	Pressing Shrinkage #1 Turn #1 Plant	817				
F	Pressing Shrinkage #2 Turn #1 Plant	196				
G	Pressing Shrinkage #2 Plant	1985		2999	1.29540	3884.91
Edging Dept. Loss						
H	Edging Shrinkage			3634	1.37315	4990.03
Loss in Finished Stock						
I	Finished Duplate Rejects			2362	1.49414	3526.18
Edgework						
	Rough					9.16
	Smooth					1.08
	Polished					.56
Inventories						
J	Polished Plate Glass	47282 Ft.				
K	" " Cutting Dept.	2360 "				
L	Assembled Duplate	1111 "				
M	Pressed	4240 "				
N	Edging Dept. Duplate	20468 "				
O	Finished Duplate Unedged	45609 "				
P	" " Edged	13039 "				
	Rough Edgework	250024 In.				
	Smooth "	209048 "				
	Polished "	209048 "				
		Total	14377	8995		18480.96

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PRODUCTION LOSS ANALYSIS - GLASS

JUNE 1929

	Pol. Plate Feet	Duplate Feet	Price	Amount
Polished Plate Glass Losses				
Assembly Dept. Shrinkage	1928		.41905	807.92
Cutting Loss	5831		.41905	2443.47
Pressing Department Loss		6956	1.25000	8695.00
Edging Department Loss		6706	1.29880	8709.73
Finished Stock Loss		1343	1.32728	1782.55
Edgework				
Rough Edgework				7.47
Smooth "				1.45
Polished "				.74

Inventories

Pol. Plate Glass Stock	29093	Ft.
Cutting Dept.	4010	"
Assembled Glass	1104	"
Pressing Dept.	1267	"
Edging	8837	"
Duplate Stock - Unedged	28073	"
" " Edged	26542	"
Rough Edgework	471656	In.
Smooth "	367774	"
Polished "	367774	"

1327

Total	7759	15005	22448.33

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PRODUCTION LOSS ANALYSIS - GLASS

JULY 1929

	Pol. Plate Feet	Duplate Feet	Price	Amount
Polished Plate Glass Losses				
Cutting Loss	15319		.38969	5969.85
Pressing Dept. Loss		2619	1.17182	3069.00
Edging Dept. Loss		3693	1.13345	4185.84
Duplate Loss in Stock		2000	1.21470	2429.48
Inventories				
Pol. Plate Glass Stock	40161 Ft.			
Cutting Dept.	31238 "			
Assembled Glass "	1530 "			
Pressing Dept.	13242 "			
Edging Dept.	9457 "			
Duplate Stock - Unedged	14621 "			
" " Edged	27089 "			
Rough Edgework	420274 In.			
Smooth "	265734 "			
Polished "	265734 "			
Total	15319	8312		19654.17

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PRODUCTION LOSS ANALYSIS - GLASS

AUGUST 1929

			Pol. Plate Feet	Duplate Feet	Price	Amount
Polished Plate Loss						
15-A	Assembly - Pol. Plate rejected before assembly - Unit #1	2907				
15-B	Pol. Plate rejected after assembly - Unit #1	4724				
16-C	Pol. Plate rejected before Assembly - Unit #2	1977				
16-D	Pol. Plate Rejected after assembly - Unit #2	3643				
	Total Assembly Shrinkage		13251		.38457	5099.12
13-E	Polished Plate - Cutting Loss		14053		.38457	5404.36
Pressing Dept. Loss						
20-F	Pressing Shrinkage - Unit #1 Plant #2	4587				
21-G	Pressing Shrinkage - Unit #2 Plant #2	4242				
22-H	Pressing Shrinkage - Plant #1	26				
22-I	Pressing Shrinkage Local Orders Plant #1	272				
23-J	Pressing Shrinkage Fluid LamO inating Duplate	429		9559	1.11237	10633.14
Edging Dept. Loss						
28-K	Edging Shrinkage			7205	1.21673	8766.58
Finished Stock						
	Loss in Stock			17177	1.28002	21986.90
	Polished Edgework					314.98

Inventories

L	Polished Plate Stock	68676	
M	" " Cut Glass Stock	10279	
N	Assembled Duplate	2341	
O	Pressed "	17823	
P	Edged Duplate Edging Dept.	12242	
Q	Finished Stock Duplate Unedged	13566	
Q	" " " Edged	52557	
Rough Edge Work		812782	In.
Smooth Edge Work		747082	In.
Polished Edge Work		747082	In.

	Total	[illegible]7304	33941	52205.08

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PRODUCTION LOSS ANALYSIS - GLASS

SEPTEMBER 1929

			Pol. Plate Feet	Duplate Feet	Price	Amount
Polished Plate Loss						
52-A	Pol. Plate Cutting Loss #1 Turn	7965.95 Ft.				
52-B	Pol. Plate Cutting Loss #2 Turn	4196.70	12163		.39988	
53-C	Pol. Plate Loss in Stock		482		.39944	5056.27
Assembly Department Loss						
60-D	Assembly Shrinkage-#1 Turn	1429.09 Ft.				
61-E	" " #2 "	1433.27		1431	.55715	1594.56
Pressing Department Loss						
60-F	Pressing Shrinkage-#1 Turn	2339.18 Ft.				
61-G	" " #2 "	2254.14				
64-H	" " Local orders	234.38		4827	1.17305	5662.31
Carbitol Department Loss						
74-I	Pressing Shrinkage			1131	1.31033	1481.98
Edging Department Loss						
67-J	Edging Shrinkage			1740	1.31033	2279.97
Loss in Finished Stock						
73-K	Rejected before shipping	310.14 Ft.				
75-L	" " "	95.38		405	1.36167	551.48
Inventories						
M	Polished Plate Stock	45719 Ft.				
N	Cut Glass Stock	10614 "				
O	Pyralin Stock	59647 Sheets				
P	Assembled Duplate	3428 Ft.				
Q	Pressed Duplate	4012 "				
R	Warehouse Stock Duplate	8120 "				
S	Edged Duplate	52328 "				
	Total		12645	9534		16626.17

1330

1067

PRODUCTION LOSS ANALYSIS - GLASS

OCTOBER 1929

			Pol. Plate Feet	Duplate Feet	Price	Amount
Polished Plate Loss						
77-A	Loss in Stock		450		.36763	165.43
Cutting Department Loss						
76-B	Cutting Loss	15519				
81-C	Cutting Loss Specialty Dept.	18	15537		.36794	5716.68
Assembly Department Loss						
82-D	Assembly Shrinkage	1294				
83-E	Assembly Shrinkage	1434	2728		.39072	1065.88
Pressing Department Loss						
82-F	Pressing Shrinkage #1 Turn	1958.41				
82-G	Pressing Shrinkage #2 Turn	1904.69				
83-H	Pressing Shrinkage Fluid #1 Plant	1228.39				
83-I	Pressing Shrinkage Fluid #2 Plant	1247.99				
86-J	Pressing Shrinkage Local Orders	86.53		6427	1.07060	6880.75
Carbitol Department Loss						
90-K	Operating Shrinkage			520	1.17599	611.51
Edging Department Loss						
88-L	Edging Shrinkage	923.45				
89-M	Edging Shrinkage	215.99				
94-N	Carbitol Cutting in Edging Dept.	180.41				
	Adjustment to Physical Inventory	2492.15		3812	1.17753	4488.75
Finished Duplate Loss						
89-O	Rejected before shipping	42.60				
	" " "	332.74				
	Adjustment to inventory	200.66		576	1.29339	744.99
Inventories						
P	Pol. Plate Stock	52997 Ft.				
Q	Cut Glass Stock	8672 "				
R	Assembled Duplate Stock	3820 "				
S	Pressed Duplate Stock	16676 "				
T	Warehouse Duplate Stock	4251 "				
U	Finished Duplate Stock Edged	66818 "				
V	Pyralin Stock	51739 Sheets				
		Total	18715	11335		19673.99

1331

1068

PRODUCTION LOSS ANALYSIS - GLASS

NOVEMBER 1929

		Pol. Plate Feet	Duplate Feet	Price	Amount
Polished Plate Loss					
96-A Loss in Stock		310		.36360	112.72
Polished Plate Cutting Dept. Loss					
96-B Cutting Loss	8677.66				
106-C " " Specialty Dept.	65.76	8744		.36316	3175.47
Assembly Dept. Loss					
97-D Assembly Shrinkage	1072.33				
97-E " "	441.82	1514		.39280	594.70
Pressing Dept. Loss					
97-F Pressing Shrinkage	2424.99				
98-G " "	1492.25		3917	1.11522	4368.32
Carbitol Dept. Loss					
101-H Operating Shrinkage	74.23				
102-I " "	185.34		259	1.27948	331.39
Edging Dept. Loss					
103-J Edging Shrinkage			1049	1.27948	1342.17
Loss in Finished Duplate			3450	1.35740	4683.03
Inventories					
K Pol. Plate Stock	24170				
L Cut Glass Stock	16561				
M Pyralin Stock	59920				
N Assembled Duplate Stock	1162				
O Pressed Duplate Stock	6996				
P Warehouse Duplate Stock	5575				
Q Edged Duplate Stock(Finished)	40653				
Total		10568	8675		14607.80

1332

1069

PRODUCTION LOSS ANALYSIS - GLASS

DECEMBER 1929

		Pol. Plate Feet	Duplate Feet	Price	Amount
Polished Plate Loss					
117-A P.P. Loss in Stock		357		.37832)	2675.10
Polished Plate Cutting Dept. Loss					
117-B Cutting Pol. Plate		6714		.37832)	
Assembly Dept. Loss					
118-C Assembly Shrinkage			1270	1.12239	1425.44
Pressing Dept. Loss					
118-D Pressing Shrinkage	2685				
118-E " " (Carbitol)	8		2693	1.22626	3302.32
Pressed Glass Stock					
120-F Loss in Stock			127	1.36461	173.31
Edging Dept. Loss					
121-G Edging Shrinkage			660	1.36645	901.86
Finished Glass Stock					
Loss in Stock	1585				
Loss in Stock	7857		9442	1.46536	13835.93
Inventories					
Pol. Plate Stock	63739 Ft.				
Cut Glass Stock	14315 "				
Pyralin Stock	42426 Sheets				
Cut Pyralin Stock	676 "				
Pressed Glass Stock	27445 Ft.				
Finished Glass Stock	15831 "				
Total		7071	14192		22313.96

1333

10720

PRODUCTION LOSS ANALYSIS - GLASS

JANUARY 1930

		Pol. Plate Feet	Duplate Feet	Price	Amount
Pol. Plate Stock					
2-A Loss in Stock		1034		.34270	354.35
Pol. Plate Cutting Dept. Loss					
2-B Loss Cutting		27970		.34343	9605.74
Assembly Dept. Loss					
2-C Assembly Shrinkage-Belt Rejects	602.70Ft.				
2-D " " -Handling "	1385.01				
Feetage Pol. Plate Loss	1987.71				
" Duplate Loss			994	1.03497	1028.76
Pressing Dept. Loss					
2-E Pressing Shrinkage	3942.84 Ft.				
2-F " " Returns from ED	1423.06				
6-G " " Local Orders	501.68		5867	1.09773	6440.38
Pressed Glass Stock Loss					
2-H Loss in Stock			202	1.242392	250.96
Edging Dept. Loss					
3-I Edging Shrinkage	838.32 Ft.				
3-J " " Stock Glass	190.79				
3-K " " Oil Cutting	1006.27				
" " Miscellaneous	127.62		2163	1.20034	2596.33
Finished Duplate Stock					
3-L Loss in Stock			286	1.31267	375.43

Inventories

Polished Plate Glass	70860	Ft.
Cut Glass Stock	9997	"
Pyralin	85508	Sh.
Cut Pyralin	1670	"
Pressed Glass Stock	29200	Ft.
Finished Stock	26018	"

Total	29004	9512	20651.95

1334

1071

PRODUCTION LOSS ANALYSIS - GLASS

FEBRUARY 1930

		Pol. Plate Feet	Duplate Feet	Price	Amount
Pol. Plate Glass Stock					
9-A	Loss in Stock	350		.34726	121.54
9-B	Cutting Loss	15827		.34763	5501.94
Assembly Dept. Loss					
9-C	Assembly-Split Rejects	406.56			
9-D	" Handling Rejects	1069.64			
	Polished Flt. Ftg.	1476.20			
	Duplate Footage		738	1.00784	743.79
Pressing Dept. Loss					
9-E	Pressing Shrinkage	1553.65 Ft.			
9-F	Pressing Rejects from ED	790.48			
9-G	" " " "	1653.54			
10-H	" " Stock Glass	286.47			
13-I	" Shrinkage-Local Orders	23.16			
	" " -Miscellaneous	21.70	4329	1.07222	4641.64
Pressed Glass Stock					
9-J	Loss in Stock		172	1.20054	206.49
Edging Dept. Loss					
10-K	Edging Shrinkage	424.05 Ft.			
10-L	" " Stock Duplate	34.54			
10-M	" " Oil Cutting	984.12			
	Inventory Adjustment	664.29	2107	1.20174	2532.07
Finished Duplate Stock					
10-N	Loss in Stock		4	1.32269	5.29

Inventories

Pol. Plate Stock	29476	Ft.
Cut Glass Stock	1287	"
Pyrali Stock	108227	Sh.
Cut Pyralin Stock	463	"
Pressed Glass Stock	24594	Ft.
Finished Glass Stock	30167	"

1335	Total	16177	7350	13752.76

1072

PRODUCTION LOSS ANALYSIS - GLASS

MARCH 1930

			Pol. Plate Feet	Duplate Feet	Price	Amount
Pol. Plate Glass Loss:-						
21-A	Loss in Stock		175		.34882	61.04
21-B	Cutting Loss		15741		.34899	5493.45
Assembly & Pressing Dept. Loss:-						
21-C	Assembly Shrinkage	451.15 Ft.				
21-D	" " Handling Rej.	1115.70				
	Total Pol. Plate Feetage Loss	1566.85				
	Total Duplate Assembly Loss	783.42				
21-E	Pressing Shrinkage	3846.76)				
21-F	Returns from Edging Dept.	1211.58)				
25-G	Pressing Shrinkage - Locals	164.24)		6006	1.01206	6078.43
Pressed Glass Stock Loss:-						
21-H	Loss in Stock			68	1.01206	68.82
Edging Department Loss:-						
22-I	Edging Shrinkage	977.80 Ft.				
22-J	" " Stock Duplate	127.84				
22-K	" " Oil Cutting	1137.39		2243	1.19211	2673.90
Finished Duplate Stock:-						
22-L	Loss in Stock			57	1.32099	75.30
Inventories:-						
	Pol. Plate Stock	44799 Ft.				
	Cut Glass Stock	2433 "				
	Pyralin Stock	77684 Sh.				
	Cut Pyralin Stock	975 "				
	Pressed Glass Stock	26420 Ft.				
	Finished Duplate Stock	34278 "				
	Total		15916	8374		14450.94

1336.

PRODUCTION LOSS ANALYSIS - GLASS

APRIL 1930

		Pol. Plate Feet	Duplate Feet	Price	Amount
Pol. Plate Glass Loss:-					
34-A Loss in Stock		34		.35065	11.92
34-B Cutting Loss		10293		.35070	3609.75
Assembly & Pressing Dept. Loss:-					
34-C Assembly Shrinkage	611.49 Ft.				
34-D " " (Handling)	476.68 "				
34-E Pressing "	2049.18 "				
34-F " " (Edging Returns)	552.16 "				
Inventory Adjustment	436.51 "		3253	1.02833	3345.16
Pressed Glass Stock Loss:-					
34-G Loss in Stock			104	1.18466	123.23
Edging Dept. Loss:-					
35-H Edging Shrinkage (StockDuplate)	112.91 Ft.				
35-I " "	499.44 "				
35-J " "	37.99 "				
35-K " " Oil Cutting	557.40 "				
Miscellaneous	330.26 "		1538	1.18585	1823.84
Finished Duplate Loss:-					
35-L Loss in Stock			48	1.31373	63.06
Inventories:-					
M Polished Plate Stock	19896 Ft.				
N " " Cut Stock	7180 "				
O Assembled & Pressed Duplate	34104 "				
P Finished Duplate	22019 "				
Q Pyralin	112277 Sheets				
Total		10587	4943		8976.96

1337

(28)

1074

PRODUCTION LOSS ANALYSIS - GLASS

MAY 1930

		Pol. Plate Feet	Duplate Feet	Price	Amount
Pol. Plate Glass Loss:-					
48-A Loss in Stock		35		.3530	12.35
48-B Cutting Shrinkage		6074		.3530	2144.12
Assembly & Pressing Loss:-					
48-C Assembly Shrinkage	152.11 Ft.				
48-D Pressing "	1432.77 "				
48-E " " (Edging Rejects)	1126.84 "				
52-F " " (Duplate Locals)	23.03 "				
52-G " " (" Rent)	336.25 "		3071	1.00059	3072.81
Pressed Glass Stock Loss:-					
48-H Loss in Stock			566	1.14046	645.50
Edging Dept. Loss:-					
49-I Edging Shrinkage	733.57 Ft.				
49-J " " (Stock Duplate)	41.14 "				
Inventory Adjustment	76.29 "		851	1.12388	956.42
Finished Duplate Loss:-					
49-K Loss in Stock			683	1.24866	852.97
Inventories:-					
L Polished Plate Glass	18562 Ft.				
M " " " (Cut Stock)	595 "				
N Assembled & Pressed Duplate	31662 "				
O Finished Stock "	9277 "				
P Pyralin	82227 Sheets				
Total		6109	5171		7684.17

1338

1025

[fol. 1339] SUPREME COURT OF THE UNITED STATES, OCTOBER TERM, 1935

No. 767

ORDER ALLOWING CERTIORARI—Filed March 30, 1936

The petition herein for a writ of certiorari to the United States Circuit Court of Appeals for the Third Circuit is granted. And it is further ordered that the duly certified copy of the transcript of the proceedings below which accompanied the petition shall be treated as though filed in response to such writ.

[fol. 1340] SUPREME COURT OF THE UNITED STATES, OCTOBER TERM, 1935

No. 768

ORDER ALLOWING CERTIORARI—Filed March 30, 1936

The petition herein for a writ of certiorari to the United States Circuit Court of Appeals for the Third Circuit is granted. And it is further ordered that the duly certified copy of the transcript of the proceedings below which accompanied the petition shall be treated as though filed in response to such writ.

Endorsed on cover: File No. 40,321, 40,322. U. S. Circuit Court of Appeals, Third Circuit. Term No. 767. Duplate Corporation and Pittsburgh Plate Glass Company, petitioners, vs. Triplex Safety Glass Company of North America. Term No. 768. Duplate Corporation and Pittsburgh Plate Glass Company, petitioners, vs. Triplex Safety Glass Company of North America. Petition for writs of certiorari and exhibit thereto. Filed February 21, 1936. Term No. 767, O. T., 1935, 768, O. T., 1935.

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Nos. 767 768

IN THE

Supreme Court of the United States

NO. ..... OCTOBER TERM, 1935.

DUPLATE CORPORATION and PITTSBURGH PLATE GLASS COMPANY, Petitioners,

v.

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA, Respondent.

PETITION FOR WRITS OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE THIRD CIRCUIT AND SUPPORTING BRIEF.

WILLIAM WATSON SMITH,
LEON E. HICKMAN,
Counsel for Petitioners.

1025 Union Trust Building,
Pittsburgh, Pa.

SMITH BROS. CO. INC., LAW PRINTERS, 208-212 GRANT STREET, PITTSBURGH, PA.

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IN THE

Supreme Court of the United States

NO. ..... OCTOBER TERM, 1935.

DUPLATE CORPORATION and PITTSBURGH PLATE GLASS COMPANY, Petitioners,

v.

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA, Respondent.

PETITION FOR WRITS OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE THIRD CIRCUIT AND SUPPORTING BRIEF.

To the Honorable Charles Evans Hughes, Chief Justice of the United States, and the Associate Justices of the Supreme Court of the United States:

The undersigned, on behalf of the above named petitioners, pray that writs of certiorari issue to review decrees of the United States Circuit Court of Appeals for the Third Circuit entered on December 12, 1935, on cross-appeals by the above named petitioners and respondent in the matter of Triplex Safety Glass Company of North America v. Duplate Corporation and Pittsburgh Plate Glass Company, docketed in said court as Nos. 5606 and 5626, October Term, 1934. The petitioners were defendants in the courts below.

I

Summary Statement of the Matter Involved.

This is a patent accounting case arising from the infringement of a patent covering a process for making laminated (also known as "safety" or "nonshatterable") glass, a product that will crack but not shatter. It is a composite structure consisting of two sheets of

glass arranged face to face and having sandwiched between them a sheet of pyralin (celluloid), the pyralin being cemented on both sides to the opposite glass sheets by means of a very thin film of gelatin (Master's Report, R. III—1001), the structure in this form being commonly referred to as a sandwich. The heat and pressure necessary to adhesion are applied by putting the sandwiches on racks in an autoclave, which is simply a steel boiler of large size. When the racks have been filled with sandwiches, the door is sealed and oil (formerly water) pumped into the autoclave under pressure and heated by steam until there is attained a temperature of about 250° and a pressure of about 150 pounds per square inch (Master's Report, R. 1018). When this process is completed, the glass and pyralin are firmly united and in appearance resemble a single sheet of glass.

Infringement was found to result from the use of gelatin "substantially free from contained moisture" for the purpose of cementing the pyralin to the glass: 42 Fed. (2nd) 737. There followed a decree of infringement containing a reference of the case to a special master for the purpose of stating an account of the plaintiff's damages and the Duplate Corporation's profits from the infringement (R. 37), which decree was affirmed by the Circuit Court of Appeals for the Third Circuit: 42 Fed. (2nd) 739. A supplemental consent decree was subsequently entered (R. 40), joining the Pittsburgh Plate Glass Company as a party defendant, making it responsible for any decree entered against Duplate Corporation and calling upon it for a similar accounting. Duplate Corporation was owned in equal shares by Pittsburgh Plate Glass Company and Dupont Viscoloid Company (Master's Report, R. 1002).

The accounting covers the period from January 1, 1928, to May 30, 1930, the date on which infringement

ceased (Master's Report, R. 1044). The principal use for the product has at all times been as windshields and body lights for automobiles (Master's Report, R. 1001, 1055).

The Master recommended (R. 1047, 1049) and the District Court decreed (R. 1112) the imposition of general damages, measured by a so-called reasonable royalty, in the sum of $414,120.70. The lower court added interest on the damages so awarded, from the end of the accounting period (R. 1111), which was over three and one-half years before the Master's Report (R. 999). Cross-appeals were taken to the Circuit Court of Appeals for the Third Circuit, which affirmed the decree on the petitioners' appeal, but reversed it on that of the respondent, with instructions to the District Court to revise its decree in accordance with numerous asserted principles of patent accounting set forth in the reversing opinion (R. 1152-1166). Orders, appropriate to this end, were entered (R. 1167-1168). It is these asserted principles, hereinafter detailed, which form the basis of this petition.

There is no dispute as to the facts on which the Circuit Court of Appeals made its rulings culminating in its orders for a revised decree. The court did not question the findings of fact made by the Master, which had also been approved by the District Court, the latter being in such complete agreement with the Master on the facts that it confirmed the entire report absolutely (R. 1110) and adopted the Master's findings of fact, as well as its own opinion, as the findings required of the District Court by Equity Rule No. 70½ (R. 1113). The District Court further said in its opinion (R. 1104):

> "We go next to the Master's computation of profits and losses. There seems to be no dispute in the case over the correctness of the computation of the amounts; there is no dispute over the cor-

rectness of the figures. The dispute is over the question of whether items deducted are properly and legally allowable as deductions from the sale-price, in order to determine profits."

The good faith of the defendants in manufacturing and selling the product which was ultimately held to be an infringing article has been independently sustained by the findings of the Master (R. 1002-1003, 1044, 1047), the District Court (R. 1104), and the Circuit Court of Appeals (R. 1154-1155).

II.

Reasons Relied on for the Allowance of the Writs.

1. The Circuit Court of Appeals has decided a Federal question in a way probably in conflict with applicable decisions of this Court and in conflict with the decisions of other Circuit Courts of Appeals in ruling that, in a patent accounting, an infringer who has acted in good faith cannot treat, as an item of expense, wastage represented by factory operating losses and rejections and returns of defective laminated glass, which was unavoidably concomitant with the manufacture of the good finished product, for which the infringer was accounting to the patentee (R. 1157).

2. The Circuit Court of Appeals has rendered a decision in conflict with decisions of other Circuit Courts of Appeals in ruling that an infringer who has acted in good faith must, in a patent accounting, take credit for a non-infringing and otherwise marketable product (plate glass) manufactured by one of the accountants and subsequently used by the other in making the infringing product, not at its market value when appropriated for the infringing use but only at its cost of manufacture (R. 1165).

2a. The Circuit Court of Appeals has decided a Federal question in a way probably in conflict with applicable decisions of this Court and in conflict with the decisions of other Circuit Courts of Appeals in ruling that in the determination of the cost of this non-infringing commodity (plate glass), the accountant may not charge into its account as an item of expense or allowance, the saving effected in the manufacture of this non-infringing product by process patents owned by the accountant, it having been found as a fact that the saving thus effected was largely responsible for a price which enabled the infringing product to be sold in competition with other articles (R. 1158).

3. The Circuit Court of Appeals has rendered a decision in conflict with decisions of other Circuit Courts of Appeals in ruling that in a patent accounting where costs of specific sales cannot be found because of the continuous nature of the infringement, the accountant must compute what are termed profits on specific sales by deducting average costs of manufacture from specific selling prices, despite an accepted finding that average cost did not fairly reflect actual or specific costs in this case (R. 1155-1157).

4. The Circuit Court of Appeals has rendered a decision in conflict with decisions of other Circuit Courts of Appeals and with the controlling act of Congress in ruling that general damages, measured by a so-called reasonable royalty, may be awarded, in a patent accounting, in the absence of proof that the plaintiff's actual losses cannot be computed and in the face of a refusal of the plaintiff to produce its records so that such a computation of its losses might be undertaken by the accounting defendants (R. 1162-1164).

5. The Circuit Court of Appeals has decided a Federal question in a way probably in conflict with ap-

plicable decisions of this Court and in conflict with decisions of other Circuit Courts of Appeals in ruling that interest on general damages may be awarded against an infringer who has acted in good faith, not merely from the date of the liquidation of the damages, but from the end of the infringing period (R. 1165-1166).

Wherefore the undersigned, on behalf of the aforementioned petitioners, respectfully pray that writs of certiorari be issued out of and under the seal of this Honorable Court, directed to the United States Circuit Court of Appeals for the Third Circuit, requiring that court, on a day certain to be named, to certify to this Court for determination by it the causes numbered on its docket Nos. 5606 and 5626, October Term, 1934, being cross-appeals in the matter of Triplex Safety Glass Company of North America v. Duplate Corporation and Pittsburgh Plate Glass Company, and to send to this Court a full and complete transcript of the record and of all proceedings in the said causes to the end that the decrees of the United States Circuit Court of Appeals for the Third Circuit may be reviewed by this Honorable Court and that your petitioners may have such other and further relief in the premises as to this Honorable Court may seem meet and just. And the undersigned will ever pray, etc.

WILLIAM WATSON SMITH,
LEON E. HICKMAN,
Counsel for Duplate Corporation and Pittsburgh Plate Glass Company, Petitioners.

BRIEF IN SUPPORT OF PETITION.

Opinions of the Courts Below.

The opinion of the Circuit Court of Appeals (R. 1152-1166) is unreported. The opinion of the District Court of the United States for the Western District of Pennsylvania (R. 1102) is reported in *10 Fed. Supp.* 420.

Jurisdiction.

The orders of the Circuit Court of Appeals modifying the decree of the District Court were entered December 12, 1935 (R. 1167-1168). The jurisdiction of this Court is invoked under Section 240(a) of the Judicial Code, as amended by Act of Congress, February 13, 1925, c. 229, 43 Stat. 936. The statute, the construction of which is involved, is Section 4921 of the Revised Statutes of the United States, as amended, governing patent accounting. It is hereinafter quoted at page 44.

Statement of the Case.

The facts have been summarized in the petition, and in the interest of brevity will not be repeated.

The facts being undisputed, this case can be understood in its entirety by an examination of the Master's Report (R. 999) and the opinions of the District Court (R. 1102) and the Circuit Court of Appeals (R. 1152-1166) without reference to the testimony* unless one seeks corroboration or elaboration of the findings of fact.

Specification of Errors.

Each of the rulings summarized in subdivision II of the petition as reasons relied upon for the allowance of the writs is urged as a reason for granting the writs.

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* Agreeably to Equity Rule 75(b), portions of the evidence were excluded in the preparation of the printed record, and the balance was printed in the form in which it is found in the record pursuant to stipulation of the parties and order of court (R. 1144, 1149).

ARGUMENT.

Summary.

1. Every one of the six rulings stated in the petition and urged in support of the writs is in conflict with decisions of other Circuit Courts of Appeals, the court below **conceding conflict** on rulings 4 and 5.

2. Three of the rulings (Nos. 1, 2a, and 5) have decided a Federal question in a way probably in conflict with applicable decisions of this Court, and another (No. 4) in conflict with a statute of the United States.

3. Combined, the six rulings are as important as the law of patent accounting itself. One of the rulings (No. 1) is inherent in every patent accounting case which involves an infringer's manufacturing operations, two others (Nos. 4 and 5) are inherent in every case where general damages measured by a so-called reasonable royalty are under consideration, and the others (Nos. 2, 2a and 3) constantly arise in patent accounting cases.

I.

WASTAGE.

(Factory Operating Losses, Rejections and Returns of Defective Glass)

The Circuit Court of Appeals, reversing the District Court, disallowed wastage in the form of cost items aggregating $1,477,364.84 for rejects and returns of defective laminated glass and $219,036.93 for pyralin losses (R. 1157). The first figure is a compilation not used by the District Court or the Master, but submitted to the Circuit Court of Appeals at pages 35-37 of the plaintiff's brief. This compilation, the arithmetic of

which we do not dispute, was made by adding these five items, the following explanation of which we submit, with deference, demonstrates the error of the Circuit Court of Appeals:

$538,019.87, representing the cost of labor, material (exclusive of plate glass) and other things that went into the product which was **unavoidably destroyed in the factory** in the process of manufacturing the good infringing product. This cost was allowed by the Master (Finding of Fact 12, R. 1046) and, as shown by the "Statement of Account Per Finding of Special Master" (R. 1065) was computed by him from defendants' Exhibit "O" (filed as an original exhibit), which sets forth the defendants' factory operating losses. From the recapitulation of these losses set forth on the first page of this Exhibit at $1,662,637.39, he deducted* $1,124,617.62, representing the plate glass cost included therein at the figure at which it had been charged into this Exhibit, leaving a net loss, exclusive of the cost of plate glass, totaling $538,019.87 (R. 1065).

Factory Wastage—exclusive of plate glass.

$435,207.52, representing the cost of the plate glass which went into the **destroyed product** referred to in the preceding item. This figure is computed by multiplying the feetage of the destroyed plate glass as found by the Master (in 1928, 1,521,665 sq. ft.; in 1929,

* Cost of plate glass was deducted because treated separately by the Master at a lower cost.

Factory Wastage—plate glass.

1,090,072 sq. ft.; and in 1930, 148,233 sq. ft.—R. 1065) by the bare manufacturing cost thereof as contended for by plaintiff (found by the Master to be only part of the true cost, R. 1067). Thus for 1928, 1,521,665 sq. ft. (R. 1065) at $.15590 a sq. ft. (R. 1067—top) is $237,227.57; for 1929, 1,090,072 sq. ft. (R. 1065) at $.15637 a sq. ft. (R. 1067—top) is $170,454.56; and for 1930, 148,233 sq. ft. (R. 1065) at $.18569 a sq. ft. (R. 1067—top) is $27,525.39, or a total for the three years of $435,207.52.

Wastage—returns, exclusive of plate glass cost.

$286,041.61, representing the cost of labor, material (exclusive of plate glass) and other things that went into the defective product which was returned by customers during the accounting period. This cost was allowed by the Master (Finding of Fact 13, R. 1046) and, as shown by "Statement of Account Per Finding of Special Master" (R. 1065), was computed by him from plaintiff's Exhibit "9"*, which sets forth the cost of manufacturing returned sales. From the recapitulation of these losses in Exhibit "9" at $631,280.83, he deducted** $345,239.22, representing the plate glass cost included therein at the figure at which it had been charged into this Exhibit, as shown by defendants' Exhibit "Z",* leaving a net loss, exclu-

* Filed as an original exhibit.

**Cost of plate glass was deducted because treated separately by the Master at a lower cost.

sive of the cost of plate glass, totalling $286,041.61.

$135,307.20, representing the cost of plate glass which went into the defective product referred to in the preceding item. This figure is computed by multiplying the feetage of plate glass in the laminated glass returned by customers during the accounting period as defective as found by the Master (in 1928, 118,699 sq. ft. of laminated glass, or 237,398 sq. ft. of plate glass; in 1929, 282,411 sq. ft. of laminated glass, or 564,822 sq. ft. of plate glass; and in 1930, 26,861 sq. ft. of laminated glass, or 53,722 sq. ft. of plate glass—R. 1065) by the bare manufacturing cost thereof as contended for by plaintiff (found by the Master to be only part of the true cost, R. 1067). Thus for 1928, 237,398 sq. ft. of plate glass (R. 1065) at $.15590 a sq. ft. (R. 1067—top) is $37,010.34; for 1929, 564,822 sq. ft. of plate glass (R. 1065) at $.15637 a sq. ft. (R. 1067—top) is $88,321.22; and for 1930, 53,722 sq. ft. of plate glass (R. 1065) at $.18569 a sq. ft. (R. 1067—top) is $9,975.64, or a total for the three years of $135,307.20.

Wastage—returns of plate glass.

$82,788.64, representing the cost of labor, material (including plate glass), and other things that went into the product which was sold during the accounting period, but subsequently returned by customers as defective. This cost was allowed by the Master (Finding of

Wastage—returns after accounting period.

Fact 14, R. 1046) and again appears in his account at the bottom of R. 1067.

$1,477,364.84

The first and second items, amounting to $538,019.87 and $435,207.57, respectively, comprise the cost of wastage **within the factory** and constitute sixty-seven per cent. of the wastage item of $1,477,364.84, disallowed by the Circuit Court of Appeals. These losses within the factory began with the delivery of the plate glass by the Plate Glass Company to Duplate Corporation and continued through the cutting (Masters' Report, R. 1015), transportation (Master's Report, R. 1016), assembling (Master's Report, R. 1016), pressing (Master's Report, R. 1017) and edging (Master's Report, R. 1019) departments and concluded with the rejection, on final inspection, of a comparatively small amount of defective product. A large part of such losses within the factory occurred prior to the completion of a laminated glass product. The figures are set forth in Exhibit "O" (filed as an original exhibit).

The cost of pyralin, likewise a plain wastage item, was disallowed by the Circuit Court of Appeals (R. 1157) in the amount of $219,036.93, as we have stated, supra, page 8. This item represented pyralin loss which took place **within the factory,** in the cutting, transportation or assembling departments, above mentioned, but before the pyralin was assembled between sheets of plate glass into a so-called sandwich, the Master explaining it to be "losses in pyralin prior to assembly up to May, 1929" (R. 1029) and therefore a proper allowance (R. 1030). The District Court similarly allowed it as a cost item on the finding that "the pyralin that was used in glass that did not turn out perfectly was as much a cost of production as any other part of

the factory operation" (R. 1106). The Circuit Court of Appeals, while not disturbing the aforementioned findings of fact, denied that the cost of this pyralin wastage was a proper allowance, following its erroneous theory of rejecting wastage.

The dispute as to the allowance of such wastage as an item of cost is one of law, the District Court having found (R. 1104) and the Circuit Court of Appeals apparently agreeing (R. 1157, 1165) that:

> "There seems to be no dispute in the case over the correctness of the computation of the amounts; there is no dispute over the correctness of the figures. The dispute is over the question of whether items deducted are properly and legally allowable as deductions from the sale-price in order to determine profits" (R. 1104).

The legal propriety of the allowance of this wastage as an item of manufacturing cost plainly depends on its relation to the manufacture of the good finished product for which the petitioners are accounting. Its relation has been found by the Master to be as follows:

> "The records of the defendant as to 'Factory Operating Losses' above mentioned appear to be full and complete, and the testimony of Messrs. Clause and Sherts as to the details of the various operations have convinced the Master that **the large operating losses which occurred were unavoidably concomitant with the manufacture of the good finished product** and were necessary elements in the cost of the production of the good product and are, therefore, allowed as claimed" (R. 1021—black face type ours).

These facts were summarized by the Master in his formal finding (R. 1045) as follows:

> "11. That the hazards connected with the manufacture of laminated glass were such that a

considerable amount of the infringing product had to be rejected or 'scrapped' in order that a certain volume of salable specimens might be produced."

Not only were the Master's Report and his findings confirmed and adopted by the District Court (R. 1110, 1113), but that court similarly found (R. 1105-1106):

"(b) **Factory-Operating Losses—(Rejects and Returns).** The master has found that a considerable amount of laminated glass had to be turned out only to be rejected or returned **in order that a certain volume of perfect specimens might be sold,** and has allowed these rejects and returns as operating losses **unavoidably connected** with the manufacture of good finished product, and as **necessary elements in the cost** of production of a good product. We agree with the master in his conclusion, and in so doing, we are again following Judge Thomson in the conclusion announced by him in MacBeth Evans Glass Co. v. L. E. Smith, 21 Fed. (2) 553, where Judge Thomson held in a glass-lens case that credit must be given as a part of the cost of manufacture, for defective-lenses, loss from bad debts, discounts, and allowances reasonably incident to the business in order that the defendants be charged only with the profits actually made." (black face type ours.)

Salvage was satisfactorily accounted for (Master's Report, R. 1022) and was never an issue. The Circuit Court of Appeals did not question the foregoing fact findings.

The error of the ruling. If the cost of the product destroyed in the course of manufacture "but for which the good ones could not have been produced" or returned "in order that a certain volume of perfect specimens might be sold" (Master's Report, R. 1020-1021) is not to

be allowed as an element of cost to an infringer who has acted in good faith, it is idle to say that a patentee is recovering merely an infringer's profits. The accountant is being penalized far beyond its profits. The necessity of putting one hundred sandwiches into the autoclave in order to produce eighty good ones is not different in principle from that of putting a charge into a blast furnace or a batch into a glass furnace in order that a comparable percentage of the raw material may find its way into the finished product, while the residue is consumed by the heat and goes up in smoke.

The matter cannot be better stated than in the report of the Master (R. 1020):

> "It was also established by the evidence that even the Ford Motor Company, in making laminated glass under its agreement with the plaintiff, was required to produce five million windshields in order to obtain four million good ones,—and it appears as self-evident to the Master that in the case of Ford, as in the case at bar, the cost of producing the good ones necessarily included the cost of producing the million bad ones, but for which the good ones could not have been produced."

The conflict of authorities. The decision of the Circuit Court of Appeals as to factory operating losses, rejects and returns necessarily incident to the sales on which profits are sought is a decision of a Federal question in conflict with applicable decisions of this Court. The Circuit Court of Appeals has departed from the ruling in *Manufacturing Co. v. Cowing,* 105 U. S. 253, 257, where a decree was reversed, among other reasons, because the lower court had allowed the accountant "nothing for wastage." The Circuit Court of Appeals has departed from the fundamental principle of patent accounting decreed in *Rubber Co. v. Goodyear,* 9 Wall.

(U. S.) 788, 804, where it was held that "the calculation is to be made as a manufacturer calculates the profits of his business," this court going on to explain that the cost of materials, the expenses of manufacture, and other necessary expenses should be treated as items of cost in computing profits.

The decision of the Circuit Court of Appeals on this issue is in conflict with a decision of the Circuit Court of Appeals for the Second Circuit, in which it has been ruled that money expended in reimbursement to customers for returned defective product is a proper item of cost even though the product was not returned until after the period of infringement: *Permutit Co. v. Refinite Co.*, 27 Fed. (2nd) 695, 697.

The decision of the Circuit Court of Appeals on this issue is in conflict with decisions of the Circuit Courts of Appeals for the Second, Sixth, Seventh, and Eighth Circuits, in each of which the court has ruled that in an accounting for profits there should be deducted from gross receipts every item of expense incurred in good faith as an incident to the manufacture or sale of the product being accounted for:

Stromberg Motor Devices Co. v. Zenith-Detroit Corp., 73 Fed. (2nd) 62, 64-65 (C. C. A., 2nd Cir.);

Levin Bros. v. Davis Mfg. Co., 72 Fed. (2nd) 163, 165-166 (C. C. A., 8th Cir.);

Wallace & Tiernan Co. v. Syracuse, 45 Fed. (2nd) 693, 695 (C. C. A., 2nd Cir.);

Stromberg Motor Devices Co. v. Detroit Trust Co., 44 Fed. (2nd) 958, 963-964 (C. C. A., 7th Cir.);

Oil Well Improvements Co. v. Acme Foundry & Machine Co., 31 Fed. (2nd) 898, 900 (C. C. A., 8th Cir.);

L. P. Larson, Jr., Co. v. William Wrigley, Jr., Co., 20 Fed. (2nd) 830, 832, 834 (C. C. A., 7th Cir.); modified on another point, 277 U. S. 97;

Union Elec. Welding Co. v. Curry, 279 Fed. 465, 467 (C. C. A., 6th Cir.), certiorari denied, 260 U. S. 727;

See *Canda Bros. v. Michigan Malleable Iron Co.*, 152 Fed. 178, 180 (C. C. A., 6th Cir.).

In the *Canda Bros.* case, the court did not permit the deduction because not related to the manufacture or sale of the product being accounted for, but ruled the controlling test to be (page 180):

"that losses occurring concurrently with the gaining of profits may be taken into account—that is to say, if they are losses directly resulting from the particular transaction on which the profits are allowed."

The item of expense in the *Union Elec. Welding Co.* case was the aggregate net loss for the first year of the infringement—profits resulting only in subsequent years—allowed because it was "a part of the expense incurred in working up the business and bringing about the profits in the later period" (page 467). The wastage in the instant case is much more directly related to the profit-making sales.

The decision of the Circuit Court of Appeals on this issue is also in conflict with its own earlier rulings in *Continuous Glass Press Co. v. Schmertz Wire Glass Co.*, 219 Fed. 199, (certiorari denied, 238 U. S. 623), and *Macbeth-Evans Glass Co. v. L. E. Smith Glass Co.*, 23 Fed. (2nd) 459. It was ruled in the *Continuous Glass* case (page 203) that:

"the cost of producing waste was an ingredient in the cost of producing the resultant finished prod-

uct, to the benefit of a credit for which, as against the profits to be charged to it, the defendant is entitled."

In the Macbeth-Evans case the court specifically held that "waste" is "a cost properly chargeable to manufacture" (page 462) and the court affirmed, on all points here material, "an illuminating discussion on the law" (page 460) by the lower court (21 Fed. (2nd) 553), which had held (page 555):

"losses occurring concurrently with the gaining of profits should be taken into account, if they resulted from the particular transaction on which the profits are allowed. In other words, though called losses, they are really diminutions, which are taken into account in reaching the resultant profits of the sales, on which profits were made."

. . .

"Hence, in determining the profits, if defendant is charged with the gross sales at the gross selling price, it must be credited with all those items which entered into the cost of manufacture and sale, such as **lenses returned, defective lenses,** the loss from bad debts and accounts in the sale of the infringing lenses, and also such discounts and allowances as were reasonably incident to the business, so that the defendant may be charged only with the profits actually made." (black face type ours.)

These two cases were treated by the Master as decisive of this case (Master's Report, R. 1020), and the District Court cited the *Macbeth-Evans* case as controlling (R. 1105). Neither case is mentioned in the reversing opinion of the Circuit Court of Appeals.

It is clear that the case cited (R. 1157) by the Circuit Court of Appeals (*Crosby Steam Gage & Valve*

Co. v. Consolidated Safety Valve Co., 141 U. S. 441) is inapplicable because it merely ruled that the cost of making experimental valves (see page 454) could not be charged as an expense of the infringement. Likewise all experimental items were rejected by the Master in the instant case (R. 1023-1024). We also call attention to the fact that the Circuit Court of Appeals for the Sixth Circuit has held that the *Crosby* case is inapplicable to a situation where the item of loss or expense bears a direct relation to the profitable sales: *Union Elec. Welding Co. v. Curry, supra,* 279 Fed. 465, 467.

Furthermore, the Circuit Court of Appeals may have been confused in the case at bar by other cases cited to it to the effect (1) that the cost of unsold inventory on hand at the end of the accounting period cannot be treated as an item of expense (there being no such inventory in this case, R. 1106), and (2) that in a series of isolated infringements, loss producing sales cannot be carried into the account. It is submitted that Judge Schoonmaker was clearly right in holding (R. 1106) that such cases were inapplicable to the case at bar.

II.

The Proper Accounting Basis for a Non-Infringing and Otherwise Marketable Material Used in the Infringement.

The ruling. The manufacture of the infringing laminated glass was performed by Duplate Corporation, one of the accountants. Pittsburgh Plate Glass Company sold to it the plate glass and Dupont Viscoloid Company the pyralin so used by it in manufacturing laminated glass (Opinion, R. 1109). The Plate Glass Company and the Dupont Company each owned fifty per

cent. of the stock of Duplate Corporation (Master's Report, R. 1002; Opinion, R. 1109). No exception has been taken by the plaintiff to charging pyralin into the account at the price actually paid for it by Duplate Corporation, but the plaintiff was successful in inducing the master to rule that **plate glass should be carried into the account not at its market value or what Duplate Corporation actually paid for it, but at manufacturing cost of the glass to the Pittsburgh Plate Glass Company** (Master's Report, R. 1047). This position has been affirmed by the Circuit Court of Appeals in the following language (R. 1165):

> "The defendants also assign error to the master's ruling that Pittsburgh could charge only the manufacturing cost of one-eighth inch glass and not the market price. We agree with the master, for the reasons well stated by him, that the applicable authority is not Barber Asphalt Paving Co. v. Standard Asphalt & Rubber Co., 30 F. (2d) 281, cited by the defendants."

While the Circuit Court of Appeals felt able to dispose of this matter in two sentences, it involves a minimum of $713,036.29* and, on the Circuit Court of Appeals' further ruling (R. 1158) concerning an allow-

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* The manufacturing cost of thin plate glass used by Duplate Corporation as computed by the Master (Master's Report, R. 1067) under subheadings "Manufacturing Costs", "Interest on Investments", "Allowance for Use of Patent Process", "Federal Income Tax", and "Loss Cutting" aggregates $3,403,414.11. The price at which Duplate Corporation purchased this glass, which was the market price or lower, was found by the Master to be $4,116,450.40 (Master's Report, R. 1065), making a difference of $713,036.29 between manufacturer's cost and the market price paid by Duplate Corporation.

ance for use of the Plate Glass Company's own patents, the additional sum of $1,108,692.73 (Master's Report, R. 1067) hereinafter discussed (*infra,* pages 26-32).

The Master's Report contains the following findings, which demonstrate that the plate glass appropriated for the infringing use had a long and well-established market for non-infringing purposes and that Pittsburgh Plate Glass Company had sold plate glass to the automotive industry long prior to the infringement. It was found (1) that plate glass of the very thickness used in the infringement had well-established uses and consequently "a general market value outside of the automobile industry" quite apart from its infringing use (Master's Report, R. 1055, 1057); (2) that the Pittsburgh Plate Glass Company had sold a considerable quantity of one-quarter-inch plate glass to automobile manufacturers for windshields or body lights in automobiles prior to the infringement (Master's Report, R. 1002); (3) that the infringing article was not a new article of commerce in the sense that it would have been had there been no windshields or body lights in automobiles prior to the infringement (Master's Report R. 1002); and (4) that the plate glass that went into the infringing windshield or body light was one-eighth inch in thickness rather than one-quarter inch as previously used (Master's Report, R. 1002), due to the fact that the infringing product comprised two sheets of plate glass (Master's Report, R. 1055) instead of one as formerly. **The plate glass appropriated for the infringing use was in no sense different from the other plate glass manufactured by the Pittsburgh Plate Glass Company for other purposes. There were no special runs or anything of that kind** (R. 769).

The ruling that this non-infringing and otherwise marketable plate glass must be accounted for at cost

rather than market value or the price paid for it by Duplate Corporation, was predicated upon the assertion that the infringement had created an additional market for this plate glass (Master's Report, R. 1061). The Master relied strongly upon the argument that if the decisions of three Circuit Courts of Appeals, hereinafter cited at page 23, were followed, it would be easy for an infringer who was operating in bad faith to divert his profits into the non-infringing product (Master's Report, R. 1058-1059), overlooking the fact that it would be entirely possible to have one ruling for a party who had acted in good faith in its infringement and a different rule for one who had not. This very distinction prevails in regard to allowance for Federal income taxes actually paid (*Larson Co. v. Wrigley Co.*, 277 U. S. 97) and, as a result of that ruling, presumably in other aspects of patent accounting.

The error of the ruling. The plaintiff is not merely made whole by receiving the defendants' profits on laminated glass; it is given a bonanza of large proportions in the form of easily segregated profits earned wholly on a non-infringing and otherwise marketable article, i. e., plate glass. If the defendants had bought this non-infringing marketable commodity from a third party, the patentee could not have expected to get such third party's profits, as, in this case, they make no attempt to get the profits of Dupont Viscoloid Company on pyralin. If, by fortuitous circumstance, the infringer does his own manufacturing of the non-infringing and otherwise marketable product, it is a circumstance which does not damage the patentee and from which it is not entitled to profit. Any doubt of the fundamental fairness of this assertion may be quickly dispelled by considering the converse situation. If the Pittsburgh Plate Glass Company had lost money on its plate glass while Duplate Corporation had made a profit on its laminated,

does anyone imagine that the plaintiff would concede that the profits from the sale of laminated glass should be decreased by the losses on the sale of plate glass? It would not have been allowed: *Tilghman v. Proctor,* 125 U. S. 136, 146.

The conflict of authorities. The ruling in the case at bar has been accurately stated by the Master (R. 1047):

> "That Pittsburgh Plate Glass Company is entitled to credit for only the manufacturer's cost of the one-eighth-inch plate glass used by it, or sold by it to and used by Duplate Corporation, in making laminated glass in infringement of the patent in suit."

The decision of the Circuit Court of Appeals on this point is in conflict with decisions of the Circuit Courts of Appeals for the Second, Sixth, and Seventh Circuits in each of which the court has ruled that the market value at the time of transfer to the infringing use, rather than the cost to the infringer, is the proper basis for determining profits:

Barber Asphalt Paving Co. v. Standard Asphalt & Rubber Co., 30 Fed. (2nd) 281, 284 (C. C. A., 7th Cir.); certiorari denied, 278 U. S. 659;

National Tube Co. v. Mark, 10 Fed. (2nd) 430, 431 (C. C. A., 6th Cir.);

**Hemolin Co. v. Harway Dyewood & Extract Mfg. Co.,* 166 Fed. 434, 436 (C. C. A., 2nd Cir.).

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* Accord: *Webster Loom Co. v. Higgins,* 43 Fed. 673, 674-675 (S. D. N. Y.).

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* Accord: *Webster Loom Co. v. Higgins,* 43 Fed. 673, 674-675 (S. D. N. Y.).

It was held in the *Barber Asphalt* case (page 284):

"(a) That, where the infringer purchases material for use in manufacturing an infringing commodity, the cost price of the material rather than its market value should be used in computing profits.

(b) Where noninfringing commodities which are marketable, that is, fit for market, are produced by the infringer and subsequently used by him in making the infringing products, then market value (ordinarily selling or transfer value) rather than cost to the infringer, is the proper basis for determining profits."

It was held in the *Hemolin* case (page 436):

"The raw materials of the patent are the paste and the nitrite, which are to be treated together to produce the result. In figuring profits obtained by use of the process of the patent, the first element is the market price of the raw materials employed. The circumstance that defendant made the paste is as immaterial as would be the circumstance that he made the nitrite. Both of these substances are well-known marketable commodities, wholly outside the patent. If the infringer buys them of some one else at the market price, that is an element of cost. If he buys them of himself, he is entitled to have their cost taken as including the profit he would have had to pay the outsider. In producing those commodities, not covered by the patent, he is entitled to whatever profit he has earned, and the patentee may not call him to account for one penny of it."

The Master conceded that other Circuit Courts of Appeals had ruled that a non-infringing and otherwise marketable product should be accounted for at its

market value at the time of appropriation to the infringement, even though the infringement had the effect of extending an existing market for the raw material (Master's Report, R. 1060-1061). He also conceded that in none of these cases had the courts limited their decisions to the extent suggested by him and later decreed in the case at bar (Master's Report, R. 1058).

While it makes no difference in the result which of the foregoing rules, (a) or (b), is applied to the case at bar, it is the fact that Pittsburgh Plate Glass Company and Duplate Corporation are entirely separate entities and that the latter purchased plate glass from the former. This was recognized by the District Court (R. 1109), but was denied by the Master, who treated the two defendants as one (Master's Report, R. 1054). Presumably, therefore, the District Court felt that rule (a) was applicable, while it appears from the Master's Report (R. 1056) that he applied rule (b). It makes no difference in the result.

The decision of the Circuit Court of Appeals on this issue is in further conflict with a decision of the Circuit Court of Appeals for the Second Circuit, which has ruled that a manufacturer who infringes a patent should be allowed "a reasonable manufacturing profit upon the unpatented part of the apparatus": *Wallace & Tiernan Co. v. Syracuse, supra,* 45 Fed. (2nd) 693, 695. The conflicting ruling in the instant case was that the Plate Glass Company could charge "only the manufacturer's cost of the one-eighth-inch plate glass" (Master's Report, R. 1047).

II-A.

The Disallowance of the Saving Effected by Twenty-Six Pittsburgh Plate Glass Company Patents on Plate Glass.

The ruling. This argument is a subdivision of argument II dealing with the ruling that the Pittsburgh Plate Glass Company must account at cost rather than market price for the plate glass which was appropriated for the infringing use.

Erroneous as we submit the ruling on the allowance for plate glass to have been, the further decision of the Circuit Court of Appeals (R. 1158) that in the computation of this cost the Plate Glass Company is not to be given credit for the saving effected in its cost of plate glass by twenty-six patents owned and used by it in the manufacture of plate glass stretches a harsh ruling beyond its elastic limit. **Not one of these patents belongs to the plaintiff.**

The District Court accepted (R. 1107) and the Circuit Court of Appeals did not controvert the finding of the Master that the savings effected by these patents amounted to $1,108,692.73 (R. 1067). There was no confusion between this saving and the profits on laminated glass because the saving was in the field of plate glass manufacture and easily demonstrated (Master's Report, R. 1010; Opinion, R. 1106-1107). The District Court found as a fact (R. 1107), which the Circuit Court of Appeals did not question, that this saving was a very large factor in enabling the defendants to sell laminated glass in competition with the much cheaper plate glass, theretofore used in automobile windshields and body lights:

"We have reviewed the evidence on this subject, and we are of the opinion that the master correctly ruled the case. It appears to us from the testimony that the defendants' patented process was a very large factor in the saving of manufacturing costs which would permit the sale of laminated glass in competition with other glass. During the infringing period, laminated glass was competing with ordinary plate-glass windshields, and must of course be offered to the market at a price which would make them salable in comparison with ordinary plate-glass" (R. 1107).

Even with the advantage of this saving, **plate glass** outsold **laminated** glass in the automotive industry by a wide margin throughout the accounting period (Master's Report, R. 1036-1038).

The Circuit Court of Appeals has reversed this ruling (R. 1158) on the arguments, (1) that the patents did not enable the Pittsburgh Plate Glass Company to make a superior quality of plate glass and therefore did not result in a superior type of laminated glass, and (2) that the law is settled that where the entire commercial value of a product arises from a patent, its owner is entitled to recover the entire profits derived from the manufacture and sale of that product.

We submit, with deference, that it is immaterial whether the Plate Glass Company's patents resulted in an improved product. The material consideration is that **the patents belonged to the Plate Glass Company, not to the plaintiff,** and that the profits resulting from their use occurred in the manufacture not of **laminated,** but of **plate glass.**

The rule that where the entire commercial value of a product arises from a patent its owner is entitled to

recover the entire profits, has no application to a situation presented by the undisputed finding (R. 1107) that it was the reduction in cost brought about by these very patents that made it possible to sell laminated glass, and in view of the further incontrovertible fact that plate glass is a well-known marketable commodity, both in and out of the automobile business, quite apart from any infringing use.

The error of the ruling. If the ruling of the Circuit Court of Appeals is adopted, a patent accounting becomes a proceeding not primarily to make a patentee whole, but to penalize one who has infringed by stripping from him everything even remotely connected with the infringement and turning it over to the patentee. The ruling is applied not merely to a deliberate infringer, but in the case at bar to companies which have been found to have acted in good faith in their infringement. The Pittsburgh Plate Glass Company has twenty-six patents which it used to make a marketable plate glass. The plaintiff has one patent on making a sandwich of two sheets of that glass primarily for use as automobile windshields and body lights, which were not new articles of manufacture, but simply improvements over the old. The old plate glass outsold laminated glass for automotive use by a wide margin throughout the entire accounting period, which ended May 30, 1930, (Master's Report, R. 1036-1038). Yet the Pittsburgh Plate Glass Company must turn over to the plaintiff not merely the profits attributable to the latter patent, but the savings which both of the lower courts have accepted as having been made possible by the twenty-six plate glass patents, in none of which the plaintiff has any right or interest whatever.

The conflict of authorities. The decision of the Circuit Court of Appeals that the Pittsburgh Plate Glass

Company was not entitled to the savings in the manufacture of plate glass brought about by the patents owned by it is a decision of a Federal question in conflict with applicable decisions of this Court that a manufacturing infringer is entitled to an allowance for the savings in manufacture effected by his own patents. It was ruled in *Mason v. Graham,* 23 Wall. (U. S.) 261, 277:

> "We think, also, that the defendant has been excessively charged for the profits made by him on the 346 beds, and the 1548 rockers sold by him at various times for the repair of bridle motions previously made. **He has been credited with the cost only, without reference to the fact that the cost was reduced by his own invention."** (black face type ours.)

A similar ruling was made in *Mowry v. Whitney,* 14 Wall. (U. S.) 620, 650-651, where it was held:

> "the court decreed against the defendant the entire profits made by him in the manufacture and sale of the wheels from beginning to end, not only the profits resulting from the reheating and regulated slow cooling in connection, but also those which may have resulted from mixing and melting the iron, casting in molds, making the chill, and from the possible advance on the iron above its cost, with interest on the whole.
>
> "This we think was an error." (page 650)
>
> . . .
>
> "The same principle, therefore, which gives to the complainants the aggregate profits of the entire manufacture would give the same profits to a patentee of the process of chilling, if there were one, and as there are many processes in the manufacture, for each of which it is conceivable there might be a patent, and as every one of the processes is nec-

essary to make a marketable wheel, **an infringer might be mulcted in several times the profits he had made from the whole manufacture.** We cannot assent to such a rule" (pages 650-651—black face type ours.)

The decision of the Circuit Court of Appeals on this issue is in further conflict with decisions of the Circuit Courts of Appeals for the Second and Seventh Circuits, where it has been ruled that an infringer is entitled to treat, as an item of expense, royalties paid to a third party on a patent used in the course of making the infringing product, even though the third party to whom the royalty was paid was the owner of most of the stock of the infringer:

Stromberg Motor Devices Co. v. Detroit Trust Co., supra, 44 Fed. (2nd) 958, 962 (C. C. A., 7th Cir.);

Stromberg Motor Devices Co. v. Zenith-Detroit Corp., supra, 73 Fed. (2nd) 62, 65 (C. C. A., 2nd Cir.).

The District Court, relying upon the cases last cited, stated in justification of its allowance of a comparable royalty to the Pittsburgh Plate Glass Company (R. 1107):

"If the defendants had been paying royalty on these twenty-six patents that were involved in their process of manufacture, that payment, of course, would have been an allowable deduction. We can see no distinction if they themselves happened to own the patents. We believe they should be entitled to a reasonable royalty-allowance on account of their patents."

The Master's ruling to the same effect was predicated upon the decisions of this Court above quoted, (*supra,* pages 29-30).

The Circuit Court of Appeals in the case at bar cites in justification of its reversing ruling (R. 1158) authorities said to be applicable "where the entire commercial value of a mechanism or product arises from the patent improvement." It is submitted that this line of authority is plainly inapplicable to the case at bar. If it were applicable, it would be in conflict with the decision of the Circuit Court of Appeals for the Second Circuit in *Cincinnati Car Co. v. New York Rapid Transit Corp.*, 66 Fed. (2nd) 592, 593, 594, where it was held that the owner of one of several patents covering an infringing article could not collect the entire profits from the sale of that article by an infringer **even though the article could not have been sold without the use of the invention covered by the infringed patent.** It was held:

> "It is of course possible to imagine an invention for a machine, or composition, or process, which is a complete innovation, emerging, full grown, like Athene, from its parent's head. It would then be easy to say that profits were to be attributed wholly to the invention. Such inventions are however mythological. All have a background in the past, and are additions to the existing stock of knowledge which infringing articles embody along with the invention" (page 593).
>
> "When it (the entire value) is to be so attributed was left at large; but **we doubt whether it is enough that the article could not have been sold or used without the improvement.** That is indeed material on the issue of damages, since it goes far to show that the patentee, who alone could have supplied the demand, would have got the sales. But it cannot really determine how much of the infringer's profits are due to the patent. True, the improvement in such a case is a condition, but so is everything else which the infringer uses and owes to

the prior art" (page 594—matter in parenthesis and black face type ours).

It would seem doubly clear that the plaintiff could not get both laminated glass and plate glass profits in the instant case because plate glass, which does not involve the plaintiff's patent, could be and was sold apart from an infringing use.

III.

Method of Stating the Account.

The ruling. The Circuit Court of Appeals has directed (R. 1155-1157) the District Court not merely to determine profits on profit-making sales, disregarding those made at a loss, but to compute them by deducting the average cost of manufacture from the specific sales price on each transaction. This reversal of the District Court again presents a question of law, there being no disagreement between the tribunals (R. 1155-1157, 1165) as to the facts. The District Court found it to be the fact that (R. 1105):

> "The defendants were engaged in a regular and continuous business during the period of these operations in the manufacture of infringing glass. In this continuous business, the infringing glass cannot be treated separately."

Both the Master (R. 1025-1026) and the District Court (R. 1106) recognized the long-established rule that profitable sales were to be accounted for while loss-producing sales were not to be deducted, but they were confronted with the practical problem that every court must face in attempting to determine those profits where the infringer is engaged in a regular and continuous business in which there is in effect one continuous infringement, rather than a series of isolated ones and in

which it is a practical impossibility to determine the specific cost of a given sale. As the District Court commented (R. 1105):

> "To determine truly the profits or losses, sales-prices must be compared with specific costs of items of manufacture of the infringing article."

That being impossible the court was confronted with three alternatives: (1) it could realistically treat the business as one continuous infringement, as in fact it was, and compute the aggregate net profit on that continuous infringement; or (2) it could treat each sale as a separate infringement, but due to the impossibility of determining actual costs on that sale, compute the profit by deducting from an average selling price for such product an average cost; or (3) it could work out an average cost based upon one continuous infringement, and then, shifting theories, contrast that average with the specific revenue received for each sale.

Both the Master and the District Court, finding the third method inequitable and inconsistent with itself, adopted the first. The inequity of the third method as applied to this case arose from the fact that average costs did not in fact reflect specific costs, because, as the Master pointed out (R. 1026-1027):

> "In this particular instance, however, *average* costs do not reflect *specific* costs for many reasons, among them the following:
>
> (1) All production does not cost the same per foot in any given month due to difference in cost of glass on account of size, bracket and quality, and in cost of pyralin because of finish and size of sheet.
>
> (2) Cutting losses of different brackets of glass are not equal nor are losses in operation equal.

(3) Edge work was performed on some sales and not on others, causing a considerable spread in cost of manufacturing.

(4) The cost of an order for one thousand windshields is much less per light than the cost of an order for ten windshields, because, regardless of the size of the order, a template must be made and can be used for a thousand lights as well as ten" (italics by Master).

The District Court adopted these findings (R. 1105, 1113), but the Circuit Court of Appeals, while not disagreeing with the findings (R. 1155-1157, 1165), disagreed with the conclusion.

The Circuit Court of Appeals has apparently ruled as to the three alternatives previously mentioned (*supra,* page 33): (1) that there is a rigidity to patent accounting which excludes in every case the possibility of treating an infringement as one continuous act; (2) that there is no room for a middle-of-the-road position that, if average costs are to be used, they should be deducted from average selling prices to determine profits; and (3) that where there is in fact one continuous infringement, it is to be treated as such for the purpose of computing an average cost but broken up into a series of specific infringements corresponding to particular sales for the purpose of ascertaining specific receipts regardless of the fact that the individual sales may be of a product so expensive to make that it costs much more than the average prices.

The error of the ruling. If an infringement in the course of a regular and continuous business is so much a single act that actual costs cannot be computed, even though it is known that the cost of different articles varies considerably, then it is submitted that there has

been a single continuing act of infringement and that it should be so treated not only in determining costs, but in computing revenues and determining profits.

Under no circumstances should it be permissible to compute profits by deducting an average cost from the proceeds of a specific sale. Not only may such costs bear no accurate relation to actual or specific costs, as in the case at bar, but in every case an average cost will have, as a component part, savings effected by large scale production and manufacturing operations incident not merely to profitable, but to unprofitable, sales, while segregated selling prices will not reflect this factor. In other words, the loss-producing sales will be considered in ascertaining an average cost, but will be disregarded in the computation of the selling price.

The conflict of authorities. The decision of the Circuit Court of Appeals that a continuous manufacture of an infringing product can under no circumstances be treated as a single continuous infringement is in conflict with decisions of the Circuit Courts of Appeals for the Sixth and Seventh Circuits, as well as with an earlier decision of the Circuit Court of Appeals for the Third Circuit, where accountings were so conducted in circumstances comparable to the present case:

Union Electric Welding Co. v. Curry, supra, 279 Fed. 465, 466-467 (C. C. A., 6th Cir.);

Western Glass Co. v. Schmertz Wire Glass Co., 226 Fed. 730, 732, 734 (C. C. A., 7th Cir.), certiorari denied, 239 U. S. 648;

Macbeth-Evans Glass Co. v. L. E. Smith Glass Co., *supra,* 23 Fed. (2nd) 459 (C. C. A., 3rd Cir.), affirming 21 Fed. (2nd) 553, 555.

In the *Union Elec. Welding Co.* case, the infringement was treated as a whole for the purpose of permitting the

infringer to deduct as an item of expense his losses for the first year of the infringement because it was "a part of the expense incurred in working up the business and bringing about the profits in the later period" (page 467).

Judge Schoonmaker, in deciding the instant case in the District Court, relied upon the *Macbeth-Evans* case, *supra,* in ruling that the infringement should be treated as a single continuous act. In the *Macbeth-Evans* case, the Circuit Court of Appeals had specifically approved, on all matters here material, as "an illuminating discussion of the law" an opinion of the District Court wherein it had been ruled (21 Fed. (2nd) 553, 555):

> "While the defendant was an infringer, it was carrying on a regular and continuous business, during the period of its operations in the manufacture of the infringing lenses. In this continuous business, the infringing lenses cannot be treated separately as constituting a vast number of separate infringements."

The alternative chosen by the Circuit Court of Appeals in the case at bar, namely, a computation of profit by deducting an average cost from a specific selling price, is in conflict with a well-reasoned opinion that such a computation should not be made where average costs do not fairly reflect actual costs: *Christensen v. National Brake & Elec. Co.,* 10 Fed. (2nd) 856, 870-871 (E. D. Wis.). The remaining alternative, a computation of profits by the deduction of an average cost from an average selling price, although not discussed in any of the opinions in the case at bar, was applied by Mr. Justice Nelson, presiding in the Circuit Court for the Southern District of New York: *Tatham v. Lober,* 4 Blatch. 86.

IV.

May General Damages Be Awarded Without Giving the Defendants an Opportunity to Calculate the Plaintiff's Actual Damages?

The ruling. The Circuit Court of Appeals has ruled (R. 1162-1164) that general damages may be awarded without regard to whether the plaintiff's actual damages are susceptible of calculation and determination with reasonable accuracy. The plaintiff made no attempt to demonstrate that these damages could not be calculated; indeed, it submitted some evidence in support of such a calculation (Master's Report, R. 1031-1034). Desiring to demonstrate that the plaintiff's actual damages could be computed and that they were small, the defendants sought (R. 671-676, 947), but the plaintiff (R. 676), sustained by the Master (R. 676, 775-776, 948), refused to permit the defendants to examine the plaintiff's books and records for the purpose, among others, of demonstrating the true extent of the plaintiff's damages.

The error of the ruling. Revised Statutes, Section 4921, the controlling enactment (*infra,* page 44), did not make provision for an award of general damages in lieu of an award based upon a defendant's profits or a plaintiff's actual damages until 1922, when such provision was inserted by way of amendment. The statute squarely conditions the right to secure general damages as follows:

> "If * * * such damages or profits are not susceptible of calculation and determination with reasonable certainty, * * * the court may adjudge and decree the payment by the defendant to the complainant of a reasonable sum as profits or

general damages for the infringement." (black face type ours).

There is sound policy behind this statutory condition precedent, this subordination of a guess to a calculation. If a plaintiff's actual or specific damages can be computed or a defendant's actual profits determined, there is no justification for going beyond the alternative most favorable to the plaintiff and penalizing a defendant by entering a decree for something other than that which the plaintiff has lost or the defendant has gained.

The conflict of authorities. The decision of the Circuit Court of Appeals on this point is in conflict with decisions of the Circuit Courts of Appeals for the Second and Sixth Circuits, in each of which the court has ruled that it is a **statutory condition precedent** to an award of general damages (reasonable royalty) that actual damages be not susceptible of calculation and determination with reasonable certainty:

Wallace & Tiernan Co. v. Syracuse, supra, 45 Fed. (2nd) 693, 694-695 (C. C. A., 2nd Cir.);

Overman Cushion Tire Co. v. Goodyear Tire & Rubber Co., 66 Fed. (2nd) 361 (C. C. A., 2nd Cir.);

Alliance Securities Co. v. De Vilbliss Mfg. Co., 76 Fed. (2nd) 503, 505 (C. C. A., 6th Cir.);

Enterprise Ry. Equipment Co. v. Wine Ry. Appliance Co., 77 Fed. (2nd) 159, 161 (C. C. A., 6th Cir.).

The Circuit Court of Appeals in the instant case concedes that the *Wallace* case is in conflict with its ruling (R. 1163), but minimizes the conflict by the assertion that the case has been distinguished on its facts in *Cincinnati Car Co. v. New York Rapid Transit Corp., supra,* 66 Fed. (2nd) 592, 595. An examination of the

latter case will show that it qualified in no particular the ruling of the *Wallace* case on the issue now under discussion. Indeed the Circuit Court of Appeals for the Second Circuit specifically approved and applied the *Wallace* case on this issue in *Overman Cushion Tire Co. v. Goodyear Tire & Rubber Co., supra,* 66 Fed. (2nd) 361.

V.

Interest.

The ruling. The Circuit Court of Appeals has ruled that interest on an award of general damages may be imposed from the date of last infringement. Infringement ceased on May 30, 1930, the Master's Report was made on January 12, 1934, and the decree of the District Court was entered July 2, 1934. Interest thus awarded for the period May 30, 1930, to July 2, 1934, amounts to $101,459.57 (R. 1111-1112).

The error of the ruling. Both the opinions of the District Court (R. 1110) and the Circuit Court of Appeals (R. 1153, 1162) recognize that the award in the instant case was one of "general damages". The applicable portion of the controlling statute (*infra,* page 44) speaks of "general damages", but makes no reference to a "reasonable royalty". The last mentioned expression has no status except as a label by which to measure an award of general damages. General damages are necessarily unliquidated until fixed by a master or a court. It is submitted that the ruling in the instant case that such an award should bear interest from the date of the last infringement—years prior to the liquidation of the damages—does violence to the well-established principle that unliquidated damages should not bear interest until liquidated, for not until then does a defendant have an opportunity to pay them. A contrary

ruling can only be based on the specious argument that there is an analogy between general damages measured by a so-called reasonable royalty and an unpaid contractual royalty, on which latter item interest properly runs from the date when payment was contractually due. The analogy falls because it contrasts an unliquidated tort claim with a liquidated contractual obligation. Such an argument would have merit only in those cases where there was proof of an **established** royalty and damages were measured by it, for then it might be argued that the basis for computing the amount due and the time when it should have been paid could have been determined. But in the case at bar there was no such **established** royalty and consequently no such proof (Master's Report, R. 1030-1031). The argument, in the absence of an established royalty, is simply an erroneous deduction from the non-statutory yardstick or label of "reasonable royalty" illustrating again what Mr. Justice Cardozo has termed "the repression of a formula, the tyranny of tags and tickets" (44 Harvard Law Review, 682, 688).

The conflict of authorities. The decision of the Circuit Court of Appeals on the allowance of interest is a decision of a Federal question in apparent conflict with applicable decisions of this Court and in clear conflict with those of various Circuit Courts of Appeals. It has long been settled by decisions of this Court that **actual** damages, either measured by a demonstrated loss to the plaintiff or an established profit to the defendant, bear interest from the date of their liquidation by an award, rather than from the date of infringement:

Mowry v. Whitney, supra, 14 Wall. (U. S.) 620, 653;

Tilghman v. Proctor, supra, 125 U. S. 136, 160-161;

Crosby Steam Gage & Valve Co. v. Safety Valve Co., supra, 141 U. S. 441, 457-458.

Many earlier decisions of this Court to the same effect are cited in these opinions. While several recognize that interest from an earlier date may be allowed in special circumstances, such as a willful and deliberate infringement or a delay in the accounting for which the defendant is responsible, **the rule is strictly enforced that in the absence of such special circumstances interest runs only from the date of liquidation.** Thus in *Mowry v. Whitney, supra,* a decree allowing interest from an earlier date was **reversed,** the court ruling (page 653):

> "We add only that in our opinion the defendant should not have been charged with interest before the final decree. The profits which are recoverable against an infringer of a patent are in fact a compensation for the injury the patentee has sustained from the invasion of his right. They are the measure of his damages. Though called profits, **they are really damages, and unliquidated until the decree is made.** Interest is not generally allowable upon unliquidated damages. We will not say that in no possible case can interest be allowed. It is enough that the case in hand does not justify such an allowance." (black face type ours).

The ruling of this Court has been consistently followed by the various Circuit Courts of Appeals in many decisions that interest on an award measured by an infringer's **profits** may only be allowed from the liquidation of such profits by the report of a master or the decree of a court, such cases including among others:

Stromberg Motor Devices Co. v. Detroit Trust Co., supra, 44 Fed. (2nd) 958, 966 (C. C. A., 7th Cir.);

Producers' & Refiners' v. Lehmann, 18 Fed. (2nd) 492, 496 (C. C. A., 8th Cir.);

Metallic Rubber Tire Co. v. Hartford Rubber Works Co., 275 Fed. 315, 324-326, certiorari denied, 257 U. S. 650.

Similarly the rulings of this Court on interest have been followed in cases where the award was based on a plaintiff's **actual damages:**

Rose v. Hirsch, 94 Fed. 177, 180 (C. C. A., 3rd Cir.);

**National Folding-Box & Paper Co. v. Elsas,* 81 Fed. 197; affirmed 86 Fed. 917, 923 (C. C. A., 2nd Cir.).

Damages of the character ruled by the foregoing cases are obviously more nearly liquidated prior to their determination by the fact-finding body than are the "general damages" awarded in the instant case. One would assume that the rule of this Court restricting interest to the period following the date of liquidation would be applied *a fortiori* to awards of general damages. It has been so decreed in awarding general damages measured by a reasonable royalty:

Fox Typewriter Co. v. Underwood Typewriter Co., 287 Fed. 453, 455 (C. C. A., 6th Cir.);

Dowagiac Mfg. Co. v. Deere & Webber Co., 284 Fed. 331, 350-351 (C. C. A., 8th Cir.);

Munger v. Perlman Rim Corp., 275 Fed. 21, 23 (C. C. A., 2nd Cir.); certiorari denied, 257 U. S., 645;

Dunkley Co. v. Vrooman, 272 Fed. 468, 469 (C. C. A., 6th Cir.).

The Circuit Court of Appeals in the instant case concedes that there are **"cases of equal authority both ways"** (R. 1165), citing, however, three which have departed from the long-established rule. Each leans heavily on (1) circumstances indicating a willful

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* Accord: *Auto Vacuum Freezer Co. v. Wm. A. Sexton Co.,* 250 Fed. 459, 469 (S. D. N. Y.); *Westinghouse v. New York Air Brake Co.,* 133 Fed. 936 (S. D. N. Y.).

and deliberate infringement, or (2) an unconscionable delay in the accounting for which the defendant is responsible. Conflict is conceded in one of the cases cited (R. 1165) by the court: *National Tube Co. v. Mark, supra,* 10 Fed. (2nd) 430, 433 (C. C. A., 6th Cir.). Such other rulings as may be cited to the same effect will be found to rest on equally peculiar circumstances or on an **established** royalty. This is necessarily so because, as Judge Taft remarked in *National Folding-Box & Paper Co. v. Dayton Paper-Novelty Co.,* 97 Fed. 331, 332, (S. D. Oh.), in reversing, on rehearing, a previous ruling of his own to the contrary.

> "an examination of all the cases in the Supreme Court shows the greatest reluctance on the part of that court to allow interest in a patent case before the master has liquidated the damages."

The Circuit Court of Appeals has ruled in the instant case that interest may be imposed for a period prior to the liquidation of general damages, **although the infringement was conducted in good faith and there is no charge of delay in connection with the accounting.** It is said (R. 1166) that the matter is one within the court's discretion, but it will be seen from the foregoing decisions that such discretion may be exercised only in the event of an infringement in bad faith, an unreasonable delay in accounting, or a comparable circumstance. The Court's explanation (R. 1166) that such an interest allowance was recommended by the Master is plainly erroneous, for the Master made no recommendation as to interest. The District Court acted (R. 1110) on the authority of a case where the infringement had been in bad faith.

Respectfully submitted,

WILLIAM WATSON SMITH,
LEON E. HICKMAN,
Counsel for Petitioners.

APPENDIX.

Revised Statutes § 4921, as amended by Act of March 3, 1897, c. 391, § 6, 29 Stat. 694; and Act of February 18, 1922, c. 58, § 8, 42 Stat. 392; 35 U. S. C., § 70, provides in part as follows:

"The several courts vested with jurisdiction of cases arising under the patent laws shall have power to grant injunctions according to the course and principles of courts of equity, to prevent the violation of any right secured by patent, on such terms as the court may deem reasonable; and upon a decree being rendered in any such case for an infringement the complainant shall be entitled to recover, in addition to the profits to be accounted for by the defendant, the damages the complainant has sustained thereby, and the court shall assess the same or cause the same to be assessed under its direction. If on the proofs it shall appear that the complainant has suffered damage from the infringement or that the defendant has realized profits therefrom to which the complainant is justly entitled, but that such damages or profits are not susceptible of calculation and determination with reasonable certainty, the court may, on evidence tending to establish the same, in its discretion, receive opinion or expert testimony, which is hereby declared to be competent and admissible, subject to the general rules of evidence applicable to this character of testimony; and upon such evidence and all other evidence in the record the court may adjudge and decree the payment by the defendant to the complainant of a reasonable sum as profits or general damages for the infringement."

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IN THE

Supreme Court of the United States

OCTOBER TERM, 1935. NOS. 767 AND 768.

DUPLATE CORPORATION and PITTSBURGH PLATE GLASS COMPANY, Petitioners,

v.

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA, Respondent.

BRIEF FOR PETITIONERS.

On Writs of Certiorari to the United States Circuit Court of Appeals for the Third Circuit.

WILLIAM WATSON SMITH,
LEON E. HICKMAN,
Counsel for Petitioners.

1025 Union Trust Building,
Pittsburgh, Pa.

SMITH BROS. CO. INC., LAW PRINTERS, 208-212 GRANT STREET, PITTSBURGH, PA.

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IN THE

Supreme Court of the United States

OCTOBER TERM, 1935. NOS. 767 AND 768.

DUPLATE CORPORATION and PITTSBURGH PLATE GLASS COMPANY, Petitioners,

v.

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA, Respondent.

BRIEF FOR PETITIONERS.

On Writs of Certiorari to the United States Circuit Court of Appeals for the Third Circuit.

Opinions of the Courts Below.

The opinion of the Circuit Court of Appeals (R. 911) is reported in 81 F. (2d) 352. The opinion of the District Court of the United States for the Western District of Pennsylvania (R. 871) is reported in 10 F. Supp. 420.

Jurisdiction.

The orders of the Circuit Court of Appeals modifying the decree of the District Court were entered December 12, 1935 (R. 923-924). The jurisdiction of this Court is invoked under Section 240(a) of the Judicial Code, as amended by Act of Congress, February 13, 1925, c. 229, 43 Stat. 938. The statute, the construction of which is involved, is Section 4921 of the Revised Statutes of the United States, as amended, governing patent accounting. It is hereinafter quoted at page 76.

Statement of the Case.

For clarity, the petitioners, which were defendants below, will be referred to as the defendants and the respondent, which was plaintiff below, as the plaintiff throughout this brief.

This is a patent accounting case arising from the infringement of patent number 1,182,739[1] covering a process for making, and a commodity known as, laminated glass (popularly referred to as "safety" or "non-shatterable" glass), a commodity that will crack but not shatter. It is a composite structure consisting of two sheets of glass arranged face to face and having sandwiched between them a sheet of pyralin (celluloid), the pyralin being cemented on both sides to the opposite glass sheets by means of a very thin film of gelatin (Master's Report, R. 793), the structure in this form being commonly referred to as a sandwich. The heat and pressure necessary to adhesion are applied by putting the sandwiches on racks in an autoclave, which is

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[1] The patent in question is set forth in full at page 175 of the Circuit Court of Appeals' record in the infringement, as distinguished from the accounting, litigation, which record has been submitted in this case and filed with the Clerk of this Court as an original exhibit. Claim 12 of this patent, upon which infringement was predicated, reads as follows:

> "12. As a new article of manufacture, a sheet of celluloid faced on both sides and in the order named by sheets of gelatin and glass, all rigidly and autogeneously united together, and the gelatin being substantially free from contained moisture, as described."

Ten of the preceding claims of the patent call for a "volatile, hydroscopic liquid" and the third claim speaks specifically of "ethyl alcohol" as a dehydrating agent.

simply a steel boiler of large size. When the racks have been filled with sandwiches, the door is sealed and oil (formerly water) pumped into the autoclave under pressure and heated by steam until there is attained a temperature of about 250° and a pressure of about 150 pounds per square inch (Master's Report, R. 806). When this process is completed, the glass and pyralin are firmly united and in appearance resemble a single sheet of glass.

Infringement by Duplate Corporation was found to result from the use of gelatin "substantially free from contained moisture" for the purpose of cementing the pyralin to the glass: 42 F. (2d) 737. There followed a decree of infringement containing a reference of the case to a special master for the purpose of stating an account of the plaintiff's damages and the Duplate Corporation's profits from the infringement (R. 26), which decree was affirmed by the Circuit Court of Appeals for the Third Circuit: 42 F. (2d) 739. Following a supplemental bill of complaint, a supplemental consent decree was subsequently entered (R. 28), joining the Pittsburgh Plate Glass Company as a party defendant, making it responsible for any decree entered against Duplate Corporation and calling upon it for a similar accounting. Duplate Corporation was owned in equal shares by Pittsburgh Plate Glass Company and Dupont Viscoloid Company (Master's Report, R. 793).

The patent which is the basis of the accounting was issued May 9, 1916 (R. 793), and expired May 9, 1933. The plaintiff made its initial attempt at exploitation of this patent in 1926 (Master's Report, R. 825; 42 F. (2d) 739, 740-741).

The accounting covers the period from January 1, 1928, to May 30, 1930, the date on which infringement ceased (Master's Report, R. 827). The amount of infringing laminated glass manufactured by Duplate

Corporation was 4,141,207 square feet[1] (R. 830). There was no unsold inventory at the end of the accounting period (R. 875)[2]. It was properly assumed by the Master (R. 793, 821-826, 836) that the only commercial use of consequence for laminated glass has been as windshields and body lights for automobiles.

The Master found, and the District Court affirmed the finding, that the defendants, during the accounting period, operated at a net loss in the manufacture and sale of the infringing product of $276,857.47 and that the plaintiff suffered a loss of $2,807.89 due to price reductions forced upon it by the price policy of the defendants (19th and 22d findings, R. 830).

The Master recommended (R. 830, 832) and the District Court decreed (R. 879) the imposition of general damages, measured by a so-called reasonable royalty, in the sum of $414,120.70. The District Court added interest aggregating $101,459.57 on the damages so awarded, computed from the end of the accounting period (R. 879), which was over three and one-half years before the Master's Report (R. 791). Cross-

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[1] The infringing product was made out of one-eighth-inch plate glass. The total amount of one-eighth-inch plate glass manufactured by Pittsburgh Plate Glass Company during the accounting period was approximately 25,000,000 square feet (Higgins, R. 376), in addition to much larger quantities of glass of other thicknesses (McHenry, R. 663-664), of which approximately 10,000,000 square feet of the one-eighth-inch plate glass were sold to Duplate Corporation (Master's Report, R. 884 B).

[2] This was because the commodity was being manufactured throughout the accounting period to meet the varying requirements of orders then on the books, the production representing, substantially, the sales (Sherts, R. 405).

appeals were taken to the Circuit Court of Appeals for the Third Circuit, which affirmed the decree on the defendants' appeal, but reversed it on that of the plaintiff, with instructions to the District Court to revise its decree in accordance with numerous asserted principles of patent accounting set forth in the reversing opinion (R. 911-922) and stated in specifications of error numbered one to seven (*infra,* pp. 7-8). Orders, appropriate to this end, were entered (R. 923-924). It is these asserted principles, hereinafter detailed, which form the basis of this review.

The case was argued before the Circuit Court of Appeals on January 2, 1936, and the opinion handed down on December 12 of the same year.

There is no dispute as to the facts on which the Circuit Court of Appeals made its rulings culminating in its orders for a revised decree. The court did not question the findings of fact made by the Master, which had also been approved by the District Court, the latter being in such complete agreement with the Master on the facts that it confirmed the entire report absolutely (R. 878, 879) and adopted the Master's findings of fact, as well as its own opinion, as the findings required of the District Court by Equity Rule No. 70½ (R. 880). The District Court further said in its opinion (R. 873):

> "We go next to the Master's computation of profits and losses. There seems to be no dispute in the case over the correctness of the computation of the amounts; there is no dispute over the correctness of the figures. The dispute is over the question of whether items deducted are properly and legally allowable as deductions from the sale-price, in order to determine profits."

The Circuit Court of Appeals apparently adopted the same view, declaring (R. 921):

> "We are inclined to give great weight to the master's fact findings. Armstrong v. Belding Bros. Co., 297 F. 728 (certiorari denied 265 U. S. 585). As was said by Judge Stone in Levin Bros. v. Davis Mfg. Co., 72 F. (2d) 163, 165, 'Determinations of fact matters by a master which are confirmed by the trial court should not be overthrown on appeal except on the clearest showing of mistake . . . .'"

The Circuit Court of Appeals undertook no such showing and made no assertion of mistake with respect to any of the findings of fact.

The facts being undisputed, **this case can be understood and decided in its entirety by an examination of the Master's Report (R. 791) and the opinions of the District Court (R. 871) and the Circuit Court of Appeals (R. 911) without reference to the testimony**[1] unless one seeks corroboration or elaboration of the findings of fact[2].

The good faith of the defendants in manufacturing and selling the product which was ultimately held to be an infringing article has been independently sustained by the findings of the Master (R. 793-794, 828, 830), the District Court (R. 873), and the Circuit Court of Appeals (R. 912-913). In the District Court, the same Judge who had decided the infringement issue (Judge Schoonmaker) held that the infringement was in good faith.

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[1] Agreeably to Equity Rule 75(b), portions of the evidence were excluded in the preparation of the printed record, and the balance was printed in the form in which it is found in the record pursuant to stipulation of the parties and order of court (R. 906, 910).

[2] In this brief, such corroboration or elaboration is confined to footnotes.

Specification of Errors.

1. The Circuit Court of Appeals erred in ruling that, in a patent accounting, an infringer who has acted in good faith cannot treat, as an item of expense, wastage represented by factory operating losses and rejections and returns of defective laminated glass, which was unavoidably concomitant with the manufacture of the good finished product, for which the infringer was accounting to the patentee (R. 915).

2. The Circuit Court of Appeals erred in ruling that an infringer who has acted in good faith must, in a patent accounting, take credit for a non-infringing and otherwise marketable commodity (plate glass) manufactured by one of the accountants and subsequently used by the other in making the infringing product, not at its market value when appropriated for the infringing use but only at its cost of manufacture (R. 921; Assignments 6 and 7, R. 888, 891).

2a. The Circuit Court of Appeals erred in ruling that in the determination of the cost of this non-infringing commodity (plate glass), the accountant may not charge into its account as an item of expense or allowance, the saving effected in the manufacture of this non-infringing commodity by process patents owned by the accountant, it having been found as a fact that the saving thus effected was largely responsible for a price which enabled the infringing product to be sold in competition with other articles (R. 915-916).

3. The Circuit Court of Appeals erred in ruling that in a patent accounting where costs of specific sales cannot be found because of the continuous nature of the infringement, the accountant must compute what are termed profits on specific sales by deducting average

costs of manufacture from specific selling prices, despite an accepted finding that average cost did not fairly reflect actual or specific costs in this case (R. 913-914).

4. The Circuit Court of Appeals erred in ruling that general damages, measured by a so-called reasonable royalty, may be awarded, in a patent accounting, in the absence of proof that the plaintiff's actual losses cannot be computed and in the face of a refusal of the plaintiff to produce its records so that such a computation of its losses might be undertaken by the accounting defendants (R. 919-921; Assignment 4, R. 887).

5. The Circuit Court of Appeals erred in ruling that interest on general damages may be awarded against an infringer who has acted in good faith, not merely from the date of the liquidation of the damages, but from the end of the infringing period (R. 922; Assignment 10, R. 894).

6. The Circuit Court of Appeals erred in ruling that plaintiff is entitled to an award of ten cents per square foot, aggregating $414,120.70, as royalty on the infringing laminated glass manufactured by defendant, Duplate Corporation, during the accounting period in infringement of the patent in suit (R. 921; Assignments 2, 3 and 9, R. 883, 886, 893).

7. The Circuit Court of Appeals erred in ruling that defendants should not be permitted to examine the books and records of the plaintiff in order to show, in connection with plaintiff's manufacture and sale of safety glass, (1) whether a reasonable royalty should be awarded and, if so, how much, inasmuch as the examination would have disclosed plaintiff's volume of business, its costs, profits, losses, rejections, returns, factory operating experience, damages from loss of sales, royalties and operating experience under its licenses to the Ford Motor Company and the Johnston Glass Com-

pany, (2) whether the plaintiff suffered damage in the competition of Duplate Corporation and, if so, its extent, and (3) the propriety of Duplate Corporation's items of expense which are challenged by the plaintiff, inasmuch as it would show that the plaintiff had comparable losses (R. 920-921; Assignment 4, R. 887).

8. The Circuit Court of Appeals erred in ruling as follows (R. 922):

> "On the plaintiff's appeal, in so far as the decree of the District Court is in accord with the rulings hereinabove set forth, it is affirmed, and in so far as we have found error in the court's rulings, the decree is reversed, with directions to modify the decree in accordance with this opinion. In so far as error is assigned upon the defendant's appeal, the decree is affirmed."

9. The Circuit Court of Appeals erred in entering, in each appeal, the following order (R. 923-924):

> "This cause came on to be heard on the transcript of record from the District Court of the United States for the Western District of Pennsylvania and was argued by counsel.
>
> "On consideration whereof, it is now here ordered, adjudged, and decreed by this Court that the decree of the said District Court in this cause be, and the same is hereby affirmed, with costs, except in so far (1) as it refers to the defendants' method of accounting, (2) as it allows credit for rejects and returns and pyralin losses, and (3) as it allows credit for the use of the patents involved in the 'continuous process.' As to these three items, the said District Court is directed to order a restatement of defendants' account in accordance with the terms of the opinion of this Court."

ARGUMENT.

Summary.

The purpose of a patent accounting is to make restitution to a patentee, not to penalize an infringer,[1] or even necessarily to take from him profits indirectly resulting from the infringement, assuming that the infringement was in good faith, as here. There are two primary measures of restitution available in equity and defined in Section 4921 of the Revised Statutes (*infra*, p. 76), the first being the profits made by the infringer from the manufacture, use, or sale of the infringing commodity[2], and the second being the damages actually sustained by the plaintiff either as a result of lost sales or sales made at a reduced price due to the competition of the infringer, the patentee to have the benefit of the measure most favorable to him.[3] If such profits or damages are not susceptible of

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[1] Unless the infringement was in bad faith, in which case an award may be increased as much as threefold, as a punitive measure: Revised Statutes, §§4921, 4919.

[2] It was said in *Leman v. Krentler-Arnold Co.*, 284 U. S. 448, 456 (opinion by Mr. Chief Justice Hughes), "In a suit in equity against an infringer, profits are recoverable not by way of punishment but to insure full compensation to the party injured." An award based upon an infringer's profits is made as "an equivalent or a substitute for legal damages": *Tilghman v. Proctor*, 125 U. S. 136, 148, (opinion by Mr. Justice Gray).

[3] It was said in *Root v. Railway Co.*, 105 U. S. 189, 212 (opinion by Mr. Justice Matthews) that "as the recovery is limited by the act to the actual damages, it is manifest that the recovery of damages and profits

determination with reasonable certainty, the court may award, as a **third** and alternative measure of restitution, what the statute characterizes as "a reasonable sum as profits or general damages". Such general damages have been popularly christened a "reasonable royalty" because of the tendency to use the measure suggested by the label as a means of estimating general damages.

The application of the foregoing three tests to the case at bar has resulted in the findings by the Master and District Court (R. 830, 880): (1) that the defendants lost $276,857.47 as a result of the infringement, (2) that the plaintiff lost $2,807.89 because of sales made at a reduced price, but that there was no adequate showing of any loss as a result of sales taken from the plaintiff by the defendants, and (3) that general damages should be awarded at the rate of ten cents a square foot of infringing commodity sold, aggregating $414,120.70.

The defendants have been deprived of their right to show the complete and exact damages of the plaintiff by the refusal of the plaintiff, sustained by the Master and the lower courts, to permit an examination of its books. There remains for consideration the proper measurement of an award based either on the defendants' profits, or on general damages, and defendants' argument will be grouped under those two headings.

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is not intended to be doubled" and that, therefore, an award measured by an infringer's profits may be supplemented if, and only to the extent that, a patentee's actual damages exceed such profits. Accord: *Tilghman v. Proctor, supra,* 125 U. S. 136, 148-149. Stated another way, the patentee "is not entitled to a duplication, but . . . . he is entitled to make a choice:" *Christensen v. National Brake & Elec. Co.,* 10 F. (2d) 856, 867 (E. D., Wis.).

Defendants' Profits or Losses. In the calculation of defendants' profits or losses, argument focuses on the following issues: The Master and the District Court found that the infringement was carried on at a loss to the defendants of $276,857.47. (1) The Circuit Court of Appeals has held that this finding should be corrected by disallowing as cost items (a) $1,477,364.84, representing wastage in the form of factory operating losses and rejections and returns of defective glass, (b) $219,036.93, representing wastage of pyralin, and (c) $1,108,692.73, representing savings effected in the manufacture of plate glass by patents owned by Pittsburgh Plate Glass company, one of the defendants. **The effect of these rulings is to turn a large loss into a tremendous alleged profit.** (2) The defendants not only contend that these rulings of the Circuit Court of Appeals were erroneous, but that the loss sustained by the defendants in the manufacture of the infringing commodity was in reality $713,036.29 greater than that found by the District Court and the Master, this figure representing the difference between the manufacturer's cost of plate glass (which was the base used in the Master's accounting) and the market price of that plate glass, (which was the amount actually paid for it by Duplate Corporation). (3) There is also in controversy the method by which the defendants' account of their profits or losses should be stated. The Master and the District Court took the position that inasmuch as it was impossible to find the actual cost of manufacturing specific orders, due to the continuous nature of the infringement, and that average costs did not accurately reflect specific costs, the net profit or loss should be computed by treating the infringement as one continuous act. The Circuit Court of Appeals, while not disagreeing with these findings, so far as concerns the facts, ruled that the form of the account should be changed and a so-

called profit determined by ascertaining the spread between the average cost of manufacture and specific prices received on each sale, this spread to be labeled "profits".

General Damages. The controversy as to a so-called reasonable royalty lies within a narrower compass. (1) The defendants contend that if the District Court and the Master, (sustained by the Circuit Court of Appeals) had not written down the defendants' losses by over $700,000 as a result of ruling that the defendants should charge themselves with plate glass at its mere manufacturing cost instead of its market value, the Master and the District Court, in all probability, would not have awarded so large a sum as general damages. (2) They further contend that had the Master or the District Court permitted them to examine the plaintiff's books and records, they would have been able to show, with much greater certainty than the plaintiff has chosen to show, exactly what, if anything, was lost by the plaintiff as a result of the infringement, and that this loss would have been shown to be so small that the Master, in good conscience, would not have recommended, or the District Court decreed, so large an award in general damages. (3) They likewise contend that, as a matter of law, general damages cannot be awarded against them at all until they have been given an opportunity to establish, with reasonable certainty, plaintiff's actual damages, if any. (4) Then there is disagreement as to the date from which interest may permissibly be awarded on general damages measured by a reasonable royalty, the lower courts in this case having allowed interest from the date of last infringement, which was some three and one-half years prior to the date of the Master's Report. The date of the report is the time from which defendants contend that interest should have been awarded.

Compressed, the issues are these:

I. Computation of defendants' alleged profits.

1. Was wastage properly disallowed as a cost item?

2. Was it proper to take plate glass into the account at cost instead of market value?

2a. Was it proper to disallow defendants a credit for the savings effected by their own patents in the manufacture of plate glass?

3. Is it proper to determine profits on the basis of the spread between an average cost and a specific selling price?

II. General damages.

1. May general damages be awarded without determining whether it is possible to ascertain a plaintiff's actual damages and the amount thereof, if any?

2. May interest be awarded from the end of the accounting period rather than from date of the Master's Report?

I.

COMPUTATION OF DEFENDANTS' ALLEGED PROFITS.

1.

Wastage: Factory Operating Losses, Rejects and Returns of Defective Glass.

The ruling. The Circuit Court of Appeals, reversing the District Court, disallowed wastage in the form of cost items aggregating $1,477,364.84 for rejects and returns of defective laminated glass and $219,036.93 for pyralin losses (R. 915). The first figure is a compilation not used by the District Court or the Master, but submitted to the Circuit Court of Appeals in the plaintiff's brief. This compilation, the arithmetic of which we do not dispute, was made by adding these five items, the following explanation of which we submit, with deference, demonstrates the error of the Circuit Court of Appeals:

[1]$538,019.87, representing the cost of labor, material (exclusive of plate glass) and other things that went into the product which was **unavoidably destroyed in the factory** in the process of manufacturing the good infringing product. This cost was allowed by the Master (Finding of Fact 12, R. 829)

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[1] The Master's 12th finding (R. 829), adopted by the District Court (R. 880), and unchallenged by the Circuit Court of Appeals was:

"12. That defendant suffered certain 'factory operating losses' in the manufacture of the infringing product, which losses, exclusive of the cost of the one-eighth-inch plate glass included therein, totalled, during the accounting period, $538,019.87."

Factory Wastage—exclusive of plate glass.

and, as shown by the "Statement of Account Per Finding of Special Master" (R. 844 A) was computed by him from defendants' Exhibit "O" (R. 1045), which sets forth the defendants' factory operating losses. From the recapitulation of these losses set forth on the first page of this Exhibit at $1,662,637.39, he deducted[1] $1,124,617.62, representing the plate glass cost included therein at the figure at which it had been charged into this Exhibit, leaving a net loss, exclusive of the cost of plate glass, totaling $538,019.87 (R. 844 A, 844 B).

$435,207.52,

representing the cost of the plate glass which went into the destroyed product referred to in the preceding item. This figure is computed by multiplying the feetage of the destroyed plate glass as found by the Master (in 1928, 1,521,665 sq. ft.; in 1929, 1,090,072 sq. ft.; and in 1930, 148,233 sq. ft.—R. 844 A) by the bare manufacturing cost thereof as contended for by plaintiff (found by the Master to be only part of the true cost, R. 844 B). Thus for 1928, 1,521,665 sq. ft. (R. 844 A) at $.15590 a sq. ft. (R. 844 B—top) is $237,227.57; for 1929, 1,090,072 sq. ft. (R. 844 A) at $.15637 a sq. ft. (R. 844 B—top) is $170,454.56; and for 1930, 148,233 sq. ft. (R. 844 A)

Factory Wastage—plate glass.

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[1] Cost of plate glass was deducted because treated separately by the Master at a lower cost.

at $.18569 a sq. ft. (R. 844 B—top) is $27,525.39, or a total for the three years of $435,207.52.

$286,041.61, representing the cost of labor, material (exclusive of plate glass) and other things that went into the defective product which was **returned by customers during the accounting period.** This cost was allowed by the Master (Finding of Fact 13, R. 829) and, as shown by "Statement of Account Per Finding of Special Master" (R. 844 A), was computed by him from plaintiff's Exhibit "9"[1], which sets forth the cost of manufacturing returned sales. From the recapitulation of these losses in Exhibit "9" at $631,280.83, he deducted[2] $345,239.22, representing the plate glass cost included therein at the figure at which it had been charged into this Exhibit, as shown by defendants' Exhibit "Z",[1] leaving a net loss, exclusive of the cost of plate glass, totalling $286,041.61 (R. 844 A, 844 B).

Wastage—returns, exclusive of plate glass cost.

$135,307.20, representing the cost of plate glass which went into the defective product referred to in the preceding item. This figure is computed by multiplying the feetage of plate glass in the laminated glass **returned by customers during the accounting period as**

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[1] Filed as an original exhibit.

[2] Cost of plate glass was deducted because treated separately by the Master at a lower cost.

Wastage—returns of plate glass.

defective as found by the Master (in 1928, 118,699 sq. ft. of laminated glass, or 237,398 sq. ft. of plate glass; in 1929, 282,411 sq. ft. of laminated glass, or 564,822 sq. ft. of plate glass; and in 1930, 26,861 sq. ft. of laminated glass, or 53,722 sq. ft. of plate glass—R. 844 A) by the bare manufacturing cost thereof as contended for by plaintiff (found by the Master to be only part of the true cost, R. 844 B). Thus for 1928, 237,398 sq. ft. of plate glass (R. 844 A) at $.15590 a sq. ft. (R. 844 B—top) is $37,010.34; for 1929, 564,822 sq. ft. of plate glass (R. 844 A) at $.15637 a sq. ft. (R. 844 B—top) is $88,321.22; and for 1930, 53,722 sq. ft. of plate glass (R. 844 A) at $.18569 a sq. ft. (R. 844 B—top) is $9,975.64, or a total for the three years of $135,307.20.

$82,788.64, Wastage—returns after accounting period.

representing the cost of labor, material (including plate glass), and other things that went into the product which was sold during the accounting period, but subsequently returned by customers as defective. This cost was allowed by the Master (Finding of Fact 14, R. 829) and again appears in his account at the bottom of R. 844 B.

$1,477,364.84

The first and second items, amounting to $538,019.87 and $435,207.57, respectively, comprise the cost of wastage within the factory and constitute sixty-seven per

cent. of the wastage item of $1,477,364.84, disallowed by the Circuit Court of Appeals.

Plaintiff's present position that these two items of $538,019.87 and $435,207.57 represent rejections of finished laminated glass is not only contrary to the record but is also contrary to plaintiff's position taken before the Special Master. The plate glass was delivered by the Pittsburgh Plate Glass Company to the Duplate Corporation at the cutting department of the latter where it was cut into the sizes called for by the various orders and then transported[1] to the assembling department where the sandwiches were assembled and were then taken into the pressing department where they were held together with adhesive paper (R. 805)[2] until they were pressed. Prior to pressing, the sandwiches were not even in the form of laminated glass. After pressing, the glass was taken to the edging department where the sharp edges were rounded (R. 807) and only after this edging was the product finished laminated glass. The Special Master in his report (R. 804-807) clearly shows how this manufacturing operation was conducted. Speaking of the transportation of the sheets of plate glass from the cutting department to the assembling department, the Master says that in this transportation the jostling caused breakage and dirt and sand often settled between the sheets, causing losses, and that large losses were suffered by the chipping of the corners. With respect to these losses the Master proceeds (R. 805):

> "Counsel for the plaintiffs endeavored to indicate that losses of this nature were in excess of those which might reasonably be expected and were

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[1] This was by hand truck and for a distance of one-third of a mile (Sherts, R. 322).

[2] Elaborated, Sherts, R. 394.

> an indication of a wanton carelessness on the part of the defendants. With this contention, however, the Master is unable to agree".

The particular losses which the Master is considering at this point, and which plaintiff was then objecting to because plaintiff claimed they were so large as to indicate wanton carelessness, occurred before the plate glass was even placed in the sandwiches. The losses in the assembling department and in the pressing department arose before the product had even assumed the form of laminated glass and the losses in the edging department arose before it was a finished product. How, then, can plaintiff now be heard to say that the above mentioned items of $538,019.87 and $435,207.57 represented rejections of finished laminated glass? It is obvious that these two items were, as the Master and District Court found them to be, factory operating losses and that a large part of them occurred before the glass was in the form of laminated glass, much less in finished form.[1] The Master finds (R. 806) that the larger proportion of factory operating losses were suffered in the pressing department.

By making the distinction between factory operating losses which occurred prior to the completion of a finished article and losses which occurred after the article was finished (either from defects which appeared upon further inspection or from returns by customers because of defective manufacture), we do not mean that the losses which occurred prior to completion ought to be allowed as a cost item, while those which occurred after completion should be disallowed. We submit that they stand on exactly the same footing and that all should be allowed if they occurred concomitantly with the manufacture of the good finished commodity

[1] This may be seen by an examination of Exhibit "O" (R. 1045).

and as a necessary incident to the manufacture and sale of the infringing article for which the defendants are accounting. The fact that some of the laminated glass was found to be defective before it left the factory and some of it was found to be defective only after it reached the customer,[1] makes no difference in principle. Our purpose in demonstrating that most of the losses occurred within the factory and before the article was completed is to refute the assertion made by the plaintiff in the Circuit Court of Appeals that all of the losses making up the items of $1,477,364.84 and $219,036.93 (*supra*, pp. 15-18), respectively, were in rejections of finished product or in returns by customers.[2] Plaintiff's position, both as to the losses within the factory and as to the defective laminated glass rejected by customers, is taken in an effort to force this case into a category of

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[1] Laminated glass sold by the defendants was guaranteed for two years from February, 1928, to January 1, 1930, and for fifteen months from January 1st on (McHenry, R. 616).

[2] These returns were clearly identified, month by month, with specific sales to named customers, on which sales there has been an accounting of profits to the plaintiff. Returns received during the accounting period are thus identified in Exhibit "Z" (filed as an original exhibit), and the aggregate of these returns, as found by the Master on the eighth line of his statement of account at R. 844 A, is taken from page A of Exhibit "Z", as this line of the account states. Returns of infringing article manufactured during the period of infringement, but returned subsequent to that date are set forth in similar detail in Exhibit "W" (unprinted), concerning which the parties hereto have stipulated, in connection with a summary of the exhibit (R. 1032) as follows: "The correctness of the data appearing in these exhibits is not challenged, the sole issue between the parties being a question of law as to whether either or both are proper credits."

cases in which it does not belong, that is, cases in which, against the profits on profit making sales, an infringer seeks to set off the cost of an unsold inventory of finished articles or losses on isolated sales of such articles. The District Court properly held that there was no unsold inventory in the case at bar (*supra*, p. 4 and *infra*, p. 24) and the Circuit Court of Appeals did not challenge this holding.

The cost of pyralin, likewise a plain wastage item, was disallowed by the Circuit Court of Appeals (R. 915) in the amount of $219,036.93, as we have stated, *supra*, page 15. This item represented pyralin loss which took place within the factory, in the cutting, transportation or assembling departments, above mentioned, but before the pyralin was assembled between sheets of plate glass into a so-called sandwich, the Master explaining it to be "losses in pyralin prior to assembly up to May, 1929" (R. 815) and therefore a proper allowance (see Master's Report, R. 815-816, 829—Finding 18). The District Court allowed it as a cost item on the finding that "the pyralin that was used in glass that did not turn out perfectly was as much a cost of production as any other part of the factory operation" (R. 875). The plaintiff has conceded the causal connection between this pyralin loss and the manufacture of the infringing laminated glass, for it is stated in the plaintiff's 31st assignment of error (R. 904) that this pyralin was "used to make defective laminated glass." The Circuit Court of Appeals, while not disturbing the aforementioned findings of fact, denied that the cost of this pyralin wastage was a proper allowance, following its erroneous theory of rejecting wastage.

The dispute as to the allowance of such wastage as an item of cost is one of law, the District Court

having found (R. 873), and the Circuit Court of Appeals apparently agreeing (R. 915, 921), that:

> "We next go to the Master's computation of profits and losses. There seems to be no dispute in the case over the correctness of the computation of the amounts; there is no dispute over the correctness of the figures. The dispute is over the question of whether items deducted are properly and legally allowable as deductions from the sale-price in order to determine profits" (R. 873).

The legal propriety of the allowance of this wastage as an item of manufacturing cost plainly depends on its relation to the manufacture of the good finished product for which the petitioners are accounting. Its relation has been found by the Master to be as follows (R. 808-809):

> "The records of the defendant as to 'Factory Operating Losses' above mentioned appear to be full and complete, and the testimony of Messrs. Clause and Sherts as to the details of the various operations have convinced the Master that **the large operating losses which occurred were unavoidably concomitant with the manufacture of the good finished product** and were necessary elements in the cost of the production of the good product and are, therefore, allowed as claimed" (black face type ours).

These facts were summarized by the Master in his formal finding (R. 829):

> "11. That the hazards connected with the manufacture of laminated glass were such that a considerable amount of the infringing product had to be rejected or 'scrapped' in order that a certain volume of salable specimens might be produced."

Not only were the Master's Report and his findings confirmed and adopted by the District Court (R. 879, 880), but that court similarly found (R. 874-875):

> "(b) **Factory-Operating Losses—(Rejects and Returns).** The master has found that a considerable amount of laminated glass had to be turned out only to be rejected or returned **in order that a certain volume of perfect specimens might be sold,** and has allowed these rejects and returns as operating losses **unavoidably connected** with the manufacture of good finished product, and as **necessary elements in the cost** of production of a good product. We agree with the master in his conclusion, and in so doing, we are again following Judge Thomson in the conclusion announced by him in MacBeth Evans Glass Co. v. L. E. Smith, 21 Fed. (2) 553, where Judge Thomson held in a glass-lens case that credit must be given as a part of the cost of manufacture, for defective-lenses, loss from bad debts, discounts, and allowances reasonably incident to the business in order that the defendants be charged only with the profits actually made.
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> "Cases cited for the plaintiff in opposition to these cases we do not think are controlling, because they hold merely that an unsold inventory[1] at the end of the accounting period cannot be taken as a loss in the manufacturing loss in accounting. In a case where there is a series of isolated infringements, loss-producing sales cannot be deducted from profits in the accounting on the sales where there were profits made; and losses on experimental products cannot be deducted in accounting. We

[1] The Court's ruling that cases dealing with unsold inventory are inapplicable in this case is supported by the testimony of Sherts (R. 404-406).

recoghize the correctness of the rule in these cases; but we think they have no application to the facts of the instant case, where **the defendants are only seeking credit for losses actually accruing, while the infringing product is being manufactured in the carrying on of a continuous business"** (black face type ours).

The Circuit Court of Appeals did not question the foregoing fact findings.

The Master found that salvage was unimportant and satisfactorily accounted for (Master's Report, R. 809-810)[1], and it was never an issue.

The error of the ruling. If the cost of the product destroyed in the course of manufacture "but for which the good ones could not have been produced" or returned "in order that a certain volume of perfect specimens might be sold" (Master's Report, R. 808) is not to be allowed as an element of cost to an infringer who has acted in good faith, it is idle to say that a patentee is recovering merely an infringer's profits. The accountant is being penalized far beyond its profits, which in this case were non-existent. The necessity of putting one

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[1] All defective laminated glass—**both that rejected in the factory and that rejected by customers**—was thrown on the dump, except the small portion that the defendants were able to salvage, for which salvage credit was given in defendants' account (Sherts, R. 351-352, 399-402). The one-eighth-inch plate glass salvage, for which credit was given in Exhibit "R" under the caption "Received from Reclaiming Department," amounted to 235,675 feet in 1928, 386,178 feet in 1929, and 63,302 feet in the first five months of 1930 (R. 1027) aggregating 685,155 feet. The salvage on laminated glass was likewise credited (Datz, R. 621).

hundred sandwiches into an autoclave in order to produce eighty good ones is not different in principle from that of putting a charge into a blast furnace or a batch into a glass furnace in order that a comparable percentage of the raw material may find its way into the finished product, while the residue is consumed by the heat and goes up in smoke.

The matter cannot be better stated than in the report of the Master (R. 808):

> "It was also established by the evidence that even the Ford Motor Company, in making laminated glass under its agreement with the plaintiff, was required to produce five million windshields in order to obtain four million good ones,—and it appears as self-evident to the Master that in the case of Ford, as in the case at bar, the cost of producing the good ones necessarily included the cost of producing the million bad ones, but for which the good ones could not have been produced."

The authorities. The decision of the Circuit Court of Appeals as to factory operating losses, rejects and returns necessarily incident to the sales on which profits are sought is a departure from the ruling of this Court in *Manufacturing Co. v. Cowing,* 105 U. S. 253, 257 (opinion by Mr. Chief Justice Waite), where a decree was reversed, among other reasons, because the lower court had allowed the accountant "nothing for wastage." The Circuit Court of Appeals has departed from the fundamental principle of patent accounting decreed in *Rubber Co. v. Goodyear,* 9 Wall. (U. S.) 788, 804 (opinion by Mr. Justice Swayne), where it was held that "The calculation is to be made as a manufacturer calculates the profits of his business," this court going on to explain that the cost of materials, the expenses of manufacture, and other necessary expenses should be treated as items of cost in computing profits.

The decision of the Circuit Court of Appeals on this issue is in conflict with a decision of the Circuit Court of Appeals for the Second Circuit, in which it has been ruled that money expended in reimbursement to customers for returned defective product is a proper item of cost even though the product was not returned until after the period of infringement: *Permutit Co. v. Refinite Co.*, 27 F. (2d) 695, 697.

The decision of the Circuit Court of Appeals on this issue is in conflict with decisions of the Circuit Courts of Appeals for the Second, Sixth, Seventh, and Eighth Circuits, in each of which the court has ruled that in an accounting for profits there should be deducted from gross receipts every item of expense incurred in good faith as an incident[1] to the manufacture or sale of the product being accounted for:

Stromberg Motor Devices Co. v. Zenith-Detroit Corp., 73 F. (2d) 62, 64-65 (C. C. A., 2d Cir.). Interest on invested capital was allowed "as a business expense" (p. 64), and in allowing the deduction of taxes, certain salaries, and royalty payments, the court proceeded on the principle that "The actual profits to the defendant as a result of the infringement were by so much reduced, and, as the plaintiff is entitled only to these actual profits, the credit is allowed" (p. 65).

Levin Bros. v. Davis Mfg. Co., 72 F. (2d) 163, 165-166 (C. C. A., 8th Cir.). The court applied the following principles in the allocation of overhead:

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[1] Wastage was not involved in the decisions, but the general principle sustains the allowance of wastage as an item of expense.

"The patent law gives the right to recover all profits from an infringement. 'Profit,' as so used, is no mysterious phrase. It means simply all financial gains. Such gains are the difference between expenditures made to produce and sell the infringing articles and the receipts therefrom. . . . Always, however, the task is to see that the patentee recover every dollar of advantage realized by the infringer from the infringement and no more (p. 165) . . . The profit on the patented articles is the difference between the cost of producing them and the price received for them. . . . it is manifest that every item of expense which should properly be included in the manufacture and sale of the infringing article should be so included in ascertaining the real profit thereon" (p. 166).

Wallace & Tiernan Co. v. Syracuse, 45 F. (2d) 693, 695 (C. C. A., 2d Cir.). In ascertaining an infringer's profits "There must, however, be deducted all his expenses."

Stromberg Motor Devices Co. v. Detroit Trust Co., 44 F. (2d) 958, 963-964 (C. C. A., 7th Cir.). Royalty payments were deducted as "an expense of the business" (p. 963), and in ruling on another deduction, the court declared the principle that "When recovery of profits is sought, the one seeking them takes whatever chance there is of reduction in the profits by the usual and proper expenses and allowances" (p. 964).

Oil Well Improvements Co. v. Acme Foundry & Machine Co., 31 F. (2d) 898, 900 (C. C. A., 8th Cir.). The court held that bad debts might be deducted if "actually incurred in connection with the manufacture or sale of this device by defendant".

L. P. Larson, Jr., Co. v. William Wrigley, Jr., Co., 20 F. (2d) 830, 832, 834 (C. C. A., 7th Cir.); modified on another point, 277 U. S. 97. A deduction for advertising was premised upon the principle that "Where the injured party seeks the profits of an infringer, he takes the chance of their reduction, or even extinguishment through expenses and losses actually incurred, however unwisely or even improvidently, so long only as they were incurred in good faith" (p. 832). A further deduction for taxes was based on the principle that "While equity requires in such circumstances accounting for the profits, equity also allows in reduction outlays in that behalf made in good faith" (p. 834).

Union Elec. Welding Co. v. Curry, 279 F. 465, 467 (C. C. A., 6th Cir.), certiorari denied, 260 U. S. 727. The permitted deduction was the aggregate net loss for the first year of the infringement—profits resulting only in subsequent years—allowed because it was "a part of the expense incurred in working up the business and bringing about the profits in the later period" (p. 467).

The wastage in the instant case is much more directly related to the profit-making sales.

> See *Canda Bros. v. Michigan Malleable Iron Co.*, 152 F. 178, 180 (C. C. A., 6th Cir.). The deduction was disallowed because not related to the manufacture or sale of the product being accounted for, but the court ruled the controlling test to be "that losses occurring concurrently with the gaining of profits may be taken into account—that is to say, if they are losses directly resulting from the particular transaction on which the profits are allowed. Though called losses, they are really diminutions which are taken into account in reaching the resultant profits of the sales on which profits were made."

The decision of the Circuit Court of Appeals on this issue is also in conflict with its own earlier rulings in *Continuous Glass Press Co. v. Schmertz Wire Glass Co.*, 219 F. 199, certiorari denied, 238 U. S. 623, and *Macbeth-Evans Glass Co. v. L. E. Smith Glass Co.*, 23 F. (2d) 459. It was ruled in the *Continuous Glass* case (p. 203) that:

> "If a part was waste, the cost of making the waste should not be deducted from the cost of making the whole, for the cost of producing waste was an ingredient in the cost of producing the resultant finished product, to the benefit of a credit for which, as against the profits to be charged to it, the defendant is entitled."

In the *Macbeth-Evans* case, *supra*, the court specifically held that "waste" is "a cost properly chargeable to manufacture" (p. 462) and the court affirmed, on all points here material, "an illuminating discussion on the law" (p. 460) by the lower court (21 F. (2d) 553), which had held (p. 555):

"losses occurring concurrently with the gaining of profits should be taken into account, if they resulted from the particular transaction on which the profits are allowed. In other words, though called losses, they are really diminutions, which are taken into account in reaching the resultant profits of the sales, on which profits were made."

. . .

"Hence, in determining the profits, if defendant is charged with the gross sales at the gross selling price, it must be credited with all those items which entered into the cost of manufacture and sale, such as **lenses returned, defective lenses,** the loss from bad debts and accounts in the sale of the infringing lenses, and also such discounts and allowances as were reasonably incident to the business, so that the defendant may be charged only with the profits actually made" (black face type ours).

These two cases were treated by the Master as decisive of this case (Master's Report, R. 808), and the District Court cited the *Macbeth-Evans* case as controlling (R. 874). Neither case is mentioned in the reversing opinion of the Circuit Court of Appeals.

It is clear that the case cited (R. 915) by the Circuit Court of Appeals (*Crosby Steam Gage & Valve Co. v. Consolidated Safety Valve Co.,* 141 U. S. 441—opinion by Mr. Justice Blatchford), is inapplicable because it merely ruled that the cost of making experimental valves (see page 454) could not be charged as an expense of the infringement. Likewise all experimental items were rejected by the Master and the District Court in the instant case (R. 810-811). The *Crosby* case has been understood to be inapplicable to a situation where the item of loss or expense bore a

direct relation to the profitable sales: *Union Elec. Welding Co. v. Curry, supra,* 279 F. 465, 467 (C. C. A. 6th Cir.).

Furthermore, the Circuit Court of Appeals may have been confused in the case at bar by other cases cited to it to the effect (1) that the cost of unsold inventory on hand at the end of the accounting period cannot be treated as an item of expense[1] (there being no such inventory in this case, R. 875), (2) that in a series of isolated infringements, loss producing sales cannot be carried into the account,[2] and (3) that losses on experimental product cannot be deducted.[3] It is submitted that the District Court was clearly right in holding (R. 875, quoted, *supra,* p. 24) that such cases were inapplicable to the case at bar.

2.

Should Plate Glass Have Been Taken Into the Account at Cost or Market Value?

The ruling. The manufacture of the infringing laminated glass was performed by Duplate Corporation, one of the accountants. Pittsburgh Plate Glass Com-

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[1] *Callaghan v. Meyers,* 128 U. S. 617 (opinion by Mr. Justice Blatchford); *Oil Well Improvements Co. v. Acme Foundry & Machine Co.,* 31 F. (2d) 898 (C. C. A., 8th Cir.).

[2] *Canda Bros. v. Michigan Malleable Iron Co., supra,* 152 F. 178 (C. C. A., 6th Cir.); *Metallic Tire Co. v. Hartford Rubber Works,* 245 F. 860 (D. Conn.); *Permutit Co. v. Refinite Co., supra,* 27 F. (2d) 695 (C. C. A., 2nd Cir.); cf. *McKee Glass Co. v. H. C. Fry Glass Co.,* 248 F. 125 (C. C. A., 3rd Cir.), in which it is impossible to determine from the opinion whether there were a series of isolated infringements, but in which case the willfulness of the infringement, in contempt of a court decree, was a prominent factor.

[3] *Crosby Steam Gage & Valve Co. v. Consolidated Safety Valve Co., supra,* 141 U. S. 441.

pany sold to it the plate glass and Dupont Viscoloid Company the pyralin so used by it in manufacturing laminated glass (Opinion, R. 877). **The plaintiff had no interest in either plate glass or pyralin.** The Plate Glass Company and the Dupont Company each owned fifty per cent. of the stock of Duplate Corporation (Master's Report, R. 793; Opinion, R. 877). No exception has been taken by the plaintiff to charging pyralin into the account at the price actually paid for it by Duplate Corporation, but the plaintiff was successful in inducing the Master and the District Court to rule that **plate glass should be carried into the account not at its market value when sold to Duplate Corporation or what Duplate Corporation actually paid for it,[1] but at manufacturing cost of the glass to the Pittsburgh Plate Glass Company** (Master's Report, R. 830). This position has been affirmed by the Circuit Court of Appeals in the following language (R. 921).

> "The defendants also assign error to the master's ruling that Pittsburgh could charge only the manufacturing cost of one-eighth-inch glass and not the market price. We agree with the master, for the reasons well stated by him, that the applicable authority is not Barber Asphalt Paving Co. v. Standard Asphalt & Rubber Co., 30 F.(2d) 281, cited by the defendants."

While the Circuit Court of Appeals felt able to dispose of this matter in two sentences, it involves a mini-

[1] This was never above the market price and was 10% below it for most of the accounting period (McHenry, R. 43; Higgins, R. 637; Wherrett, R. 685). It is conceded by the plaintiff in the eighth paragraph of the supplemental bill of complaint "that the Pittsburgh Plate Glass Company granted preferential prices for plate glass to * * * Duplate Corporation, said preferential prices being substantially under the market price charged other and unrelated customers" (R. 21).

mum of $713,036.29[1] and, on the Circuit Court of Appeals' further ruling (R. 915-916) concerning an allowance for use of the Plate Glass Company's own patents, the additional sum of $1,108,692.73, hereinafter discussed (*infra,* pages 46-56).

The Master's Report contains the following findings which demonstrate that the one-eighth-inch plate glass appropriated for the infringing use had a long and well-established market for non-infringing purposes and that Pittsburgh Plate Glass Company had sold plate glass to the automotive industry long prior to the infringement. It was found (1) that plate glass of the very thickness used in the infringement (one-eighth-inch) had well-established uses and consequently "a general market value outside of the automobile industry" quite apart from its infringing use (Master's Report, R. 836, 838)[2]; (2) that the Pittsburgh Plate Glass Company had sold a considerable quantity of one-quarter-inch plate glass to automobile manufacturers

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[1] The manufacturing cost of thin plate glass used by Duplate Corporation as computed by the Master (Master's Report, R. 844 B) under subheadings "Manufacturing Costs", "Interest on Investments", "Allowance for Use of Patent Process", "Federal Income Tax", and "Loss Cutting" aggregates $3,403,414.11. The price at which Duplate Corporation purchased this glass, which was the market price or lower, was found by the Master, under the heading "Thin Plate Glass used as per Exhibits DD-FF-R" to aggregate $4,116,450.40 (Master's Report, R. 844 A), making a difference of $713,036.29 between manufacturer's cost and the market price paid by Duplate Corporation.

[2] This finding is supported by uncontradicted testimony that one-eighth-inch plate glass has been imported into the United States and sold in large quantities since the early 1890's (Higgins, R. 377); that it had been manufactured and sold by the Pittsburgh Plate

for windshields or body lights in automobiles prior to the infringement (Master's Report, R. 793); (3) that the use of glass windshields and body lights was well established before the infringement (Master's Report, R. 793) so that the infringing article was not a new article of commerce in the sense that it would have been had there been no prior windshields or body lights in automobiles; and (4) that the plate glass that went into the infringing windshield or body light was one-eighth inch in thickness rather than one-quarter inch as previously used (Master's Report, R. 793), due to the fact that the infringing product comprised two sheets of plate glass (Master's Report, R. 836) instead of one as formerly. **The plate glass appropriated for the infringing use was in no sense different from the other plate**

Glass Company in substantial volume for at least twenty-seven years (Higgins, R. 374); that it had a well-established use in railroad, street car, and building windows, particularly casement windows (Higgins, R. 374-376); that the Pennsylvania Railroad had used it as standard equipment in all of its passenger cars for many years (R. 375, 388); that the Twin City Rapid Transit Company of Minneapolis had purchased one-eighth-inch plate glass from Pittsburgh Plate Glass Company as early as 1908 and 1909 (Higgins, R. 374); that all Pittsburgh street cars use it (Higgins, R. 375); that it has been used for many years in such miscellaneous articles as mirrors, show-case and book-case doors, toilet mirrors, vanity cases and the like (Higgins, R. 374-375, 383); that other American glass companies also sold one-eighth inch plate glass (Higgins, R. 378); that glass for the foregoing uses was made by the same process as that sold to Duplate (Higgins, R. 388). The product furnished Duplate was identical with all the rest (Clause, R. 608).

glass manufactured by the Pittsburgh Plate Glass Company for other purposes[1].

The ruling that this non-infringing and otherwise marketable plate glass must be accounted for at cost rather than market value or the price paid for it by Duplate Corporation, was predicated upon the assertion that the infringement had created an additional market[2] for this plate glass (Master's Report, R. 840). The Master relied strongly upon the argument that if the decisions of three Circuit Courts of Appeals, hereinafter cited at page 40, were followed, it would be easy for an infringer who was operating in bad faith to divert his profits into the non-infringing product (Master's Report, R. 838-839), overlooking the fact that it would be entirely possible to have one ruling for a party who had acted in good faith in its infringement and a different rule for one who had not. This very distinction prevails in regard to allowance for Federal income taxes actually paid (*Larson Co. v. Wrigley Co.*, 277 U. S. 97—opinion by Mr. Justice Holmes) and, as a result of that ruling, presumably in other aspects of patent accounting.

The error of the ruling. The plaintiff is not merely made whole by receiving the defendants' alleged profits on laminated glass; it is given a bonanza of large proportions in the form of easily segregated profits earned wholly on a non-infringing and otherwise marketable article, i. e., plate glass. If the defendants had bought this non-infringing marketable commodity from a third

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[1] There were no special runs or anything of that kind (Higgins, R. 388; Clause, R. 608).

[2] Substantially the defendants were selling laminated glass to customers of the Pittsburgh Plate Glass Company, which would otherwise have purchased one-quarter-inch plate glass from it (Higgins, R. 638-639; Wherrett, R. 687).

party, the patentee could not have expected to get such third party's profits, as, in this case, it makes no attempt to get the profits of Dupont Viscoloid Company on pyralin. If, by fortuitous circumstance, the infringer does his own manufacturing of the non-infringing and otherwise marketable product, it is a circumstance which does not damage the patentee and from which it is not entitled to profit. Any doubt of the fundamental fairness of this assertion may be quickly dispelled by considering the converse situation. If the Pittsburgh Plate Glass Company had lost money on its plate glass while Duplate Corporation had made a profit on its laminated, does anyone imagine that the plaintiff would concede that the profits from the sale of laminated glass should be decreased by the losses on the sale of plate glass? It would not have been allowed: *Tilghman v. Proctor, supra,* 125 U. S. 136, 146.

An equally serious difficulty with the ruling is that it carries the accounting beyond the scope of the pleadings and decrees, none of which refer to plate glass profits in any way.[1] This, we submit, was error: *Washington Railroad v. Bradleys,* 10 Wall. (U. S.) 299, 303

[1] The supplemental consent decree was entered on December 5, 1931 (R. 28). The plaintiff formally closed its case on January 27, 1932 (R. 252), without advancing the contention that this decree was broad enough to embrace an accounting for profits on plate glass. Its conception of the situation at that time was that the supplemental bill had been brought to make Pittsburgh Plate Glass Company "responsible for any damages that may be recovered in this instant suit" and that "it has been decreed by the court the Pittsburgh Plate Glass Company is responsible" (R. 252). After the defendants were well into their proofs (Clause, R. 253-312; Sherts, R. 313-366) and had shown that Duplate Corporation had suffered heavy losses in the manufacture and sale of laminated glass, the plaintiff belatedly had the happy inspiration of turning to plate glass profits (R. 367).

(opinion by Mr. Justice Swayne). The Pittsburgh Plate Glass Company became a party defendant by supplemental pleadings and consent decree. While there is no ambiguity as to the meaning of the supplemental consent decree (R. 28-30), its purpose and meaning become plain, beyond argument, when considered in the light of the supplemental bill of complaint and its prayers (R. 17-24). In the supplemental bill plaintiff makes various allegations that the Pittsburgh Plate Glass Company was responsible for the acts of the Duplate Corporation and, in the ninth paragraph (R. 22), that the former caused to be carried out the manufacture of the "strengthened glass" and instigated and contributed to the infringing manufacture of "said strengthened glass." No reference whatever is made to plate glass. **In the eighth and tenth paragraphs (R. 20-22) plaintiff avers that the Duplate Corporation is insolvent and, in effect, that unless the Pittsburgh Plate Glass Company is made responsible for Duplate's profits and the plaintiff's damages, plaintiff will be deprived of relief.** The second prayer of the bill asks that the Pittsburgh Plate Glass Company be adjudged responsible for the acts and doings of Duplate Corporation, and the third prayer asks for an injunction against the manufacture, use or sale of "strengthened glass." **The Pittsburgh Plate Glass Company had no objection to guaranteeing the financial responsibility of Duplate Corporation and it was for that reason that it consented to the decree which followed.** In the consent decree (R. 28-30) it is ruled in paragraph 1 that both defendants infringed upon the patent as to claim 12 (which relates to gelatin); in paragraph 2 that the Pittsburgh Plate Glass Company is enjoined from making, selling or using "strengthened glass;" in paragraph 3 that plaintiff recover from the Pittsburgh Plate Glass Company profits, etc., made from "said infringement" and that the company should be held jointly and severally liable with the Duplate Cor-

poration; in paragraph 4 that the Master report an account of the quantity of "strengthened glass" made or sold by the Pittsburgh Plate Glass Company and the profits which the latter has received from "said infringement" and also the damages which plaintiff has suffered by reason thereof. **It is obvious that the purpose of the supplemental bill and the consent decree was to obtain a solvent defendant.** No reference in either of same is made to profits in **plate** glass. Since the obvious purpose was to obtain a responsible defendant, it would require very plain language in both the supplemental bill and the consent decree to broaden this accounting so as to include profits on **plate** glass instead of profits on strengthened glass. Not only is there no such plain language, but the language used is squarely opposed to any such contention because confined to alleged profits on "strengthened glass." There is no mention in the supplemental bill or its prayers or in the consent decree of the manufacture of **plate** glass or the accountability of Pittsburgh Plate Glass Company for any profit arising therefrom, a fact admitted by the Master (R. 834).

The authorities. The ruling in the case at bar has been accurately stated by the Master (R. 830):

> "That Pittsburgh Plate Glass Company is entitled to credit for only the manufacturer's cost of the one-eighth-inch plate glass used by it, or sold by it to and used by Duplate Corporation, in making laminated glass in infringement of the patent in suit."

The affirmance of this ruling by the Circuit Court of Appeals (R. 921) is in conflict with decisions of the Circuit Courts of Appeals for the Second, Sixth, and Seventh Circuits which have ruled that (a) the purchase price (if **purchased** by the infringer) rather than market value, or (b) the market value (if **manufactured** by the

infringer) at the time of transfer to the infringing use, rather than the manufacturing cost to the infringer, are the proper bases for determining profits:

Barber Asphalt Paving Co. v. Standard Asphalt & Rubber Co., 30 F. (2d) 281, 284 (C. C. A., 7th Cir.); certiorari denied, 278 U. S. 659;

National Tube Co. v. Mark, 10 F. (2d) 430, 431 (C. C. A., 6th Cir.);

[1]*Hemolin Co. v. Harway Dyewood & Extract Mfg. Co.*, 166 F. 434, 436 (C. C. A., 2nd Cir.).

It was ruled in the *Barber Asphalt* case (page 284):

"We conclude:

"(a) That, where the infringer purchases material for use in manufacturing an infringing commodity, the cost price of the material rather than its market value should be used in computing profits.

"(b) Where noninfringing commodities which are marketable, that is, fit for market, are produced by the infringer and subsequently used by him in making the infringing products, then market value (ordinarily selling or transfer value) rather than cost to the infringer, is the proper basis for determining profits.

"Good reason supports this distinction.

"The patentee's right to recover from an infringer is due to the latter's invasion of the former's rights. The infringer is a tort-feasor. He commits the tort only when he begins his infringement. So long as he engages in the making of a noninfringing commodity, ready for the market, he

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[1] Accord: *Webster Loom Co. v. Higgins*, 43 F. 673, 674-675 (S. D., N. Y.).

commits no wrong. Any profits that he makes in such enterprise belong to him. When he embarks upon the new enterprise, that of making infringing products or material, from noninfringing marketable commodities, he becomes accountable to the patentee. But his liability is limited by his wrongdoing.

"This conclusion does no violence to the theory upon which an infringer is held as a trustee ex maleficio. For as such he is merely held for all of the profits that he derived from the manufacture, sale, or use, of the *infringing* products. It would be illogical to add to such profits those earned by the manfacturer when engaged in the lawful production of a *marketable* product." (Italics by the court).

It was held in the *Hemolin* case, *supra,* (166 F. at p. 436):

"The raw materials of the patent are the paste and the nitrite, which are to be treated together to produce the result. In figuring profits obtained by use of the process of the patent, the first element is the market price of the raw materials employed. The circumstance that defendant made the paste is as immaterial as would be the circumstance that he made the nitrite. Both of these substances are well-known marketable commodities, wholly outside the patent. If the infringer buys them of some one else at the market price, that is an element of cost. If he buys them of himself, he is entitled to have their cost taken as including the profit he would have had to pay the outsider. In producing those commodities, not covered by the patent, he is entitled to whatever profit he has earned, and the patentee may not call him to account for one penny of it."

While it makes no difference in the result which of the foregoing rules, (a) or (b), promulgated in the *Barber Asphalt* case (*supra*, p. 40), is applied to the case at bar, it is the fact that Pittsburgh Plate Glass Company and Duplate Corporation are entirely separate entities and that the latter purchased plate glass from the former. This was recognized by the District Court (R. 877), but was denied by the Master, who treated the two defendants as one (Master's Report, R. 835). It makes no difference in the case at bar which of the two rules, (a) or (b), is applied.

The Master conceded that other Circuit Courts of Appeals had ruled that a non-infringing and otherwise marketable product manufactured by the infringer should be accounted for at its market value at the time of appropriation to the infringement, even though the infringement had the effect of extending an existing market for the raw material (Master's Report, R. 840). He also conceded that in none of these cases had the courts limited their decisions to the extent suggested by him and later decreed in the case at bar (Master's Report, R. 838).

The Master (R. 799, 840-841) purported to follow *Armstrong v. Belding Bros. & Co.*, 297 F. 728, 731-732 (C. C. A., 2d Cir.), but that precedent was based on the factual assumption (pp. 731-732) that the raw material (silk) could not be sold unless the seller also carried, as part of his line of merchandise, silk in an infringing patented container. It was found as a fact (p. 732) that the defendant could not have sold a pound of silk had it not infringed the plaintiff's patent and carried a full line of silk in the infringing patented package. This is vastly different from the instant case, where the defendants were losing large sums of money in an attempt

to develop a commercial market for the patented product as a partial substitute for plate glass, another marketable product.

The decision of the Circuit Court of Appeals on this issue is in further conflict with a decision of the Circuit Court of Appeals for the Second Circuit, which has ruled that a manufacturer who infringes a patent should be allowed "a reasonable manufacturing profit upon the unpatented part of the apparatus": *Wallace & Tiernan Co. v. Syracuse, supra,* 45 F. (2d) 693, 695.[1] The conflicting ruling in the instant case was that the Plate Glass Company could charge "only the manufacturer's cost of the one-eighth-inch plate glass" (Master's Report, R. 830).

The decision of the Circuit Court of Appeals also conflicts with rulings to the effect that profits only indirectly or secondarily resulting from an infringement are not properly included in measuring an award to a patentee:

Piper v. Brown, 1 Holmes 196, Fed. Cas. No. 11, 181 (D. Mass.). Profits made by an infringer of a process for preserving fish, due to the increase in sales price of fresh fish because of reduction of the available supply through its use in the infringing device, held not recoverable.

Diamond Drill & Mach. Co. v. Kelley, 131 F. 89 (E. D., Pa.). An infringer of coiled clasps was held not obligated to account for

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[1] Accord: *Nelson v. Winchell & Co.,* 203 Mass. 75, 92-93.

profits derived by it from the manufacture and sale of machines and apparatus used in the manufacture of the infringing device.

Stromberg Motor Devices Co. v. Detroit Trust Co., supra, 44 F. (2d) 958, 964-965 (C. C. A., 7th Cir. Profit on accessories sold by the infringer with the infringing device held not recoverable.

To rule otherwise and award such profits arising in a field where the plaintiff had no interest, as has been done in this case, is to give a plaintiff something of which it was never deprived. It savors not of restitution, but of penalty.

The ruling also conflicts with the well-established principle that where there are parts of a commodity which do not involve a patent, but to which a portion of an infringer's profits are reasonably attributable, an apportionment of the profits as between those parts which embody the patent and those which do not should be made:

Westinghouse Elec. & Mfg. Co. v. Wagner Elec. & Mfg. Co., 225 U. S. 604, 614-615 (opinion by Mr. Justice Lamar);

Dowagiac Mfg. Co. v. Minnesota Moline Plow Co., 235 U. S. 641, 647 (opinion by Mr. Justice Van Devanter);

Fairbanks, Morse & Co. v. American Valve & Meter Co., 34 F. (2d) 869, 871 (C. C. A., 7th Cir.);

Stromberg Motor Devices Co. v. Detroit Trust Co., supra, 44 F. (2d) 958, 960 (C. C. A., 7th Cir.).

Metallic Rubber Tire Co. v. Hartford Rubber Works Co., 275 F. 315, 322-323 (C. C. A., 2d Cir.); certiorari denied, 257 U. S. 650.

As this Court stated in the *Dowagiac Mfg. Co.* case, *supra*, "the result to be accomplished is a rational separation of the net profits so that neither party may have what rightfully belongs to the other, and it is important that the accounting be so conducted as to secure this result, if it be reasonably possible". Such an apportionment is particularly easy of application in the case at bar where the infringer is manufacturing both the old non-infringing product and the new infringing product (plate glass and laminated glass, respectively), for the infringer should be entitled to keep, as his share of the profits, the amount which he would have realized had he not converted the non-infringing article (plate glass) into the infringing commodity (laminated glass). This position is well stated in the *Metallic Rubber Tire Co.* case, *supra*, at pages 322-323:

> "The authorities hold that any profit gained by a defendant from the use of what was old prior to the date of the patent infringed cannot constitute any part of the compensation to be awarded to the patentee. In the instant case the market value of the addition made by defendant to the old tire is easy of ascertainment. **Both kinds of tires were manufactured and sold by defendant side by side. The concurrent operations thus furnish a basis of ascertainment.** They show that the profit on the sales of an equal number of plain tread tires, arrived at by including exactly the same items of cost used in determining the profits received from the infringing tire, would have been $77,064.30" (black face type ours).

2-A.

The Disallowance of the Saving Effected by Twenty-Six Pittsburgh Plate Glass Company Patents on Plate Glass.

The ruling. This argument is a subdivision of argument 2 dealing with the ruling that the Pittsburgh Plate Glass Company must account at cost rather than market price for the plate glass which was appropriated for the infringing use.

Erroneous as we submit the ruling on the allowance for plate glass to have been, the further decision of the Circuit Court of Appeals (R. 915-916) that in the computation of this cost the Plate Glass Company is not to be given credit for the saving effected in its cost of plate glass by twenty-six patents owned and used by it in the manufacture of plate glass stretches a harsh ruling beyond its elastic limit. **Not one of these patents belongs to the plaintiff.**

The District Court accepted (R. 875) and the Circuit Court of Appeals did not controvert the finding of the Master that the savings effected by these patents amounted to $1,108,692.73[1] (R. 844 B, 800, 828). There was no confusion between this saving and the profits on laminated glass because the saving was in the field of plate glass manufacture and easily demonstrated (Master's Report, R. 800; Opinion, R. 875-876). The District Court found as a fact (R. 875-876), which the Circuit Court of Appeal did not question, that this saving was a very large factor in enabling the de-

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[1] This finding is supported by uncontradicted testimony (Clause, R. 579-612; McHenry, R. 515-517, 561-579). The patents were listed, offered in evidence (R. 607) and fully described (Clause, R. 592-607).

fendant to sell laminated glass in competition with the much cheaper plate glass, theretofore used in automobile windshields and body lights (R. 875-876)[1]:

> "We have reviewed the evidence on this subject, and we are of the opinion that the master correctly ruled the case. It appears to us from the testimony that the defendants' patented process was a very large factor in the saving of manufacturing costs which would permit the sale of laminated glass in competition with other glass. During the infringing period, laminated glass was competing with ordinary plate-glass windshields, and must of course be offered to the market at a price which would make them salable in comparison with ordinary plate-glass."

The saving averaged about ten cents a square foot of plate glass (Finding 6, R. 828) or about eighty cents a windshield, each such article having about four feet of laminated glass area (Master's Report, R. 822) necessitating eight feet of plate glass in its manufacture. Even with the advantage of this saving, plate glass outsold laminated glass in the automotive industry by a wide margin throughout the accounting period (Master's Report, R. 821-823). The price saving effected in laminated glass by the Pittsburgh Plate Glass Company's patents on plate glass was of vital importance in procuring purchasers of laminated glass in view of the poor quality of the laminated glass during the greater part of the accounting period and the absence of any public demand for it. The whole matter is well summarized by the Master as follows (R. 821-823):

> "During the accounting period the plaintiff's production was a little over eleven million square

[1] This finding is supported by the Master's report (R. 793, 817-819, 821-823).

feet, of which over 93% was sold to the Ford Motor Company, and no small part of the balance to individual owners of automobiles as distinguished from manufacturers. Even adding to this the defendant's sales of four million square feet, the aggregate is comparatively small when compared to the total feetage of windshields and windows in more than eight million cars produced during the accounting period.[1]

"The experience of the Ford Motor Company was not satisfactory in all respects. Many defects made themselves apparent and many windshields were required to be replaced. Mr. Wibel, Director of purchases [illegible] Ford Motor Company during the accounting period, testified that 20% of all Ford windshields were rejected or replaced as defective, 'a loss ten times too high.' Manufacturers of other cars in the low priced field, such as Chevrolet, Plymouth and Essex, did not appear to be unduly apprehensive that Ford would have any advantage over them on this account, and did not adopt safety glass on their own cars, although Plymouth did so later. Nor does there appear to have been a 'very substantial demand' for laminated glass at that time. Mr. Wibel testified that during the years 1928, 1929 and 1930 'there perhaps has been some public demand but not to the extent to influence us necessarily' and added that Ford standardized on

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[1] An average automobile has a glass area of from 22 to 25 square feet (Downey, R. 486), making an aggregate glass area of between 160,000,000 and 200,000,000 square feet in the 8,000,000 automobiles sold during the accounting period. The 15,000,000 feet manufactured by the plaintiff and defendants, according to the Master's finding, would equip less than 10% of these cars.

safety glass on the ground of protecting the customers rather than on account of public demand. President Fisher of the Fisher Body Corporation stated that there was no public demand and Colonel Downey, a Chrysler executive, likewise agreed that there had been no substantial public demand, as did Mr. J. E. McLarty, service manager of the Hudson Motor Company. Mr. H. S. Wherrett, President of the Pittsburgh Plate Glass Company, testified that they met a great deal of resistance in endeavoring to sell this product to the automobile manufacturers inasmuch as there was no public demand for the same, and, as was testified by Mr. H. B. Higgins, Vice President of Pittsburgh Plate Glass Company, 'the buying public were not, as the advertising man says, conscious of laminated glass. They didn't ask for it when they went to buy automobiles; consequently, the automobile manufacturers saw no sales advantage in using it. So that is why I say there was no demand for it.' And even Mr. Neilson Edwards, Vice President of the plaintiff company, testified that as late as 1926 the public 'knew nothing about' laminated glass, and the automobile manufacturers took a position that irrespective of the merits of the product, they did not put it on the cars that they manufactured until the public demanded it, and that they were forced to sell to individuals until they could create a public demand for the product.

"In fact, a study of the plaintiff's sales figures reveals that, exclusive of Ford deliveries, total sales to automobile manufacturers and to the general public numbered slightly over seven hundred thousand square feet which, if devoted entirely to windshields, would only equip about 175,000 cars, by

way of contrast to the more than eight million new cars manufactured during the accounting period.

"From this evidence, which appears clear and undisputed, ..."[1]

The plaintiff was having great trouble in reconciling a price schedule satisfactory to it with what it could induce the automobile manufacturers to pay. Its so-called "established prices" were quite unacceptable, the Master finding (R. 823):

"This testimony likewise satisfies the Master that the price schedule adopted by the plaintiff company was not generally accepted by automobile manufacturers as being fair."

The Master reached this conclusion (R. 818):

"in the light of the testimony of Mr. Fisher of the Fisher Body Corporation and Mr. Downey of Chrysler, both of whom stated that the plaintiff's price schedules would not have been generally accepted even had Duplate not been in the business."[2]

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[1] This summary finds support in the testimony of Fisher of Fisher Body Corp., R. 447-448; Wibel of Ford Motor Co., R. 417-418, Downey of Chrysler Motors Corp., R. 488-490, 494-495; McLarty of Hudson Motor Car Co., R. 500, 504; Wherrett, R. 682, Higgins, R. 379-383, 623-624, 634; Edwards of Triplex Safety Glass Co., R. 131.

[2] Fisher, whose company purchased the glass for all the closed cars of General Motors Corporation (R. 444-445), testified in substance (R. 446) that no consideration was given to the general use of laminated glass in Cadillac and LaSalle bodies until the Pittsburgh Plate Glass Company in 1928 offered to supply it at $1.75 per square foot plus the cost of the edge work. Downey, of the Chrysler Corporation, testified (R. 495): "I still think there was no demand for laminated glass

The Circuit Court of Appeals has reversed (R. 915-916) the patent allowance made by the Master (R. 800, 828, 830) and the District Court (R. 875-876) on the arguments, (1) that the patents did not enable the Pittsburgh Plate Glass Company to make a superior quality of plate glass and therefore did not result in a superior type of laminated glass, and (2) that the law is settled that where the entire commercial value of a product arises from a patent, its owner is entitled to recover the entire profits derived from the manufacture and sale of that product.

We submit, with deference, that it is immaterial whether the Plate Glass Company's patents resulted in an improved article. They have been found to have resulted in an article that was salable by reason of its price (R. 875), as distinguished from one that was not. But the important consideration is that **the patents belonged to the Plate Glass Company, not to the plaintiff,** and that

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to justify paying even one-half the price that was asked for it in 1929 . . ."

An average automobile windshield contains approximately four square feet of glass area (Master's Report, R. 822; Downey, R. 486), but a **laminated** windshield calls for two sheets of thin glass and a sheet of pyralin. With plate glass at about forty cents a square foot (Master's Report, R. 844 A; Caulfield, R. 191), the material cost of the ordinary **plate glass** windshield would be about $1.60 as contrasted with a laminated windshield material cost of $3.20 for glass and $.80 for pyralin (at $.20 a square foot—Ex. "Q", submitted as an original exhibit) or a total of $4.00. Manufacturing difficulties incident to lamination (*infra,* pp. 64-65) greatly increased this spread. Small savings on each car are a matter of importance (Fisher of Fisher Body Corp., R. 450-451) to the highly competitive automobile industry (Higgins, R. 634).

the profits resulting from their use occurred in the manufacture not of **laminated**, but of **plate** glass.

The rule that where the entire commercial value of a product arises from a patent its owner is entitled to recover the entire profits, has no application to a situation presented by the undisputed finding (R. 875) that it was the reduction in cost brought about by these very patents that made it possible to sell **laminated** glass, and in view of the further incontrovertible fact that **plate** glass is a well-known marketable commodity, both in and out of the automobile business, quite apart from any infringing use.

The error of the ruling. If the ruling of the Circuit Court of Appeals is adopted, a patent accounting becomes a proceeding not primarily to make a patentee whole, but to penalize one who has infringed by stripping from him everything even remotely connected with the infringement and turning it over to the patentee. The ruling is applied not merely to a deliberate infringer, but in the case at bar to companies which have been found to have acted in good faith in their infringement. The Pittsburgh Plate Glass Company has twenty-six patents which it used to make a marketable plate glass. The plaintiff has one patent on making a product composed of two sheets of that glass primarily for use as automobile windshields and body lights, which were not new articles of manufacture, but simply improvements over the old. The old plate glass outsold laminated glass for automotive use by a wide margin throughout the entire accounting period, which ended May 30, 1930 (Master's Report, R. 821-823; see also, note 1, *supra*, p. 48). Yet the Pittsburgh Plate Glass Company must turn over to the plaintiff not merely the alleged profits attributable to the latter patent, but the savings which the Master and both of the lower courts have accepted as having

been made possible by the twenty-six plate glass patents, in none of which the plaintiff has any right or interest whatever.

The authorities. The decision of the Circuit Court of Appeals that the Pittsburgh Plate Glass Company was not entitled to the savings in the manufacture of plate glass brought about by the patents owned by it is contrary to the applicable decisions of this Court that a manufacturing infringer is entitled to an allowance for the savings in manufacture effected by his own patents. It was ruled in *Mason v. Graham,* 23 Wall. (U. S.) 261, 276-277 (opinion by Mr. Justice Strong):

> "But the master further reported that the defendant made the infringing motions after a pattern of his own devising; that they cost per pair 50 cents less than the picker-staff mechanism which he had immediately before put upon his looms; that they were made under a patent granted to him, and that they cost about 50 cents less than the motions made by the plaintiffs, the difference in the cost being due to his invention. If this is so, it is clear that the 50 cents saved on each pair, equivalent to 50 cents profit, is not due to the complainants invention . . . Manifestly the complainants are not entitled to the savings or profits resulting from the defendant's own invention" (p. 276-277).

> "We think, also, that the defendant has been excessively charged for the profits made by him on the 346 beds, and the 1548 rockers sold by him at various times for the repair of bridle motions previously made. **He has been credited with the cost only, without reference to the fact that the cost was reduced by his own invention"** (p. 277—black face type ours).

A similar ruling was made in *Mowry v. Whitney*, 14 Wall. (U. S.) 620, 650-651 (opinion by Mr. Justice Strong), where it was held:

> "the court decreed against the defendant the entire profits made by him in the manufacture and sale of the wheels from beginning to end, not only the profits resulting from the reheating and regulated slow cooling in connection, but also those which may have resulted from mixing and melting the iron, casting in molds, making the chill, and from the possible advance on the iron above its cost, with interest on the whole.
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> "This we think was an error" (p. 650).
>
> . . .
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> "The same principle, therefore, which gives to the complainants the aggregate profits of the entire manufacture would give the same profits to a patentee of the process of chilling, if there were one, and as there are many processes in the manufacture, for each of which it is conceivable there might be a patent, and as every one of the processes is necessary to make a marketable wheel, **an infringer might be mulcted in several times the profits he had made from the whole manufacture.** We cannot assent to such a rule" (pp. 650-651—black face type ours).

The decision of the Circuit Court of Appeals on this issue is in further conflict with decisions of the Circuit Courts of Appeals for the Second and Seventh Circuits, where it has been ruled that an infringer is entitled to treat, as an item of expense, royalties paid to a third party on a patent used in the course of making the infringing product, even though the third party to whom the royalty was paid was the owner of most of the stock of the infringer:

Stromberg Motor Devices Co. v. Detroit Trust Co., supra, 44 F. (2d) 958, 962-963 (C. C. A., 7th Cir.);

Stromberg Motor Devices Co. v. Zenith-Detroit Corp., supra, 73 F. (2d) 62, 65 (C. C. A., 2nd Cir.).

The District Court, relying upon the cases last cited, stated in justification of its allowance of a comparable royalty to the Pittsburgh Plate Glass Company (R. 876):

> "If the defendants had been paying royalty on these twenty-six patents that were involved in their process of manufacture, that payment, of course, would have been an allowable deduction. We can see no distinction if they themselves happened to own the patents. We believe they should be entitled to a reasonable royalty-allowance on account of their patents."

The Master's ruling to the same effect (R. 800) was predicated upon decisions of this Court to the effect previously quoted (*supra,* pp. 53-54).

The Circuit Court of Appeals in the case at bar cites, in justification of its reversing ruling (R. 916), authorities said to be applicable "where the entire commercial value of a mechanism or product arises from the patent improvement." It is submitted that this line of authority is plainly inapplicable to the case at bar. If it were applicable, it would be in conflict with the decision of the Circuit Court of Appeals for the Second Circuit in *Cincinnati Car Co. v. New York Rapid Transit Corp.,* 66 F. (2d) 592, 593, 594, where it was held that the owner of one of several patents covering an infringing article could not collect the entire profits from the sale of that article by an infringer even though the article could not have been sold without the use of the

invention covered by the infringed patent. It was held:

> "It is of course possible to imagine an invention for a machine, or composition, or process, which is a complete innovation, emerging, full grown, like Athene, from its parent's head. It would then be easy to say that profits were to be attributed wholly to the invention. Such inventions are however mythological. All have a background in the past, and are additions to the existing stock of knowledge which infringing articles embody along with the invention" (page 593).
>
> "When it (the entire value) is to be so attributed was left at large; but we **doubt whether it is enough that the article could not have been sold or used without the improvement.** That is indeed material on the issue of damages, since it goes far to show that the patentee, who alone could have supplied the demand, would have got the sales. But it cannot really determine how much of the infringer's profits are due to the patent. True, the improvement in such a case is a condition, but so is everything else which the infringer uses and owes to the prior art" (page 594—matter in parenthesis and black face type ours).

It would seem doubly clear that the plaintiff could not get both laminated glass and plate glass profits in the instant case because plate glass, which does not involve the plaintiff's patent, could be and was sold apart from an infringing use.

3.

Method of Stating the Account.

The ruling. The Circuit Court of Appeals has directed (R. 913-914) the District Court not merely to determine profits on profit-making sales, disregarding those made at a loss, but to compute them by deducting the average cost of manufacture from the specific sales price on each transaction. This reversal of the District Court again presents a question of law, there being no disagreement between the tribunals (R. 913-914, 921) as to the facts. The District Court found it to be the fact that (R. 874):

> "The defendants were engaged in a regular and continuous business during the period of these operations in the manufacture of infringing glass. In this continuous business, the infringing glass cannot be treated separately."

The Master found (R. 829), and the District Court adopted the finding (R. 880), that

> "17. That defendant, in figuring its costs, used average manufacturing costs month by month although production costs varied materially with different orders. The Master is unable to determine specific manufacturing costs."

Both the Master (R. 812-813) and the District Court (R. 875) recognized the long-established rule that profitable sales were to be accounted for while loss-producing sales were not to be deducted, but they were confronted with the practical problem that every court must face in attempting to determine those profits where the infringer is engaged in a regular and continuous business in which there is in effect one continuous infringement, rather than a series of isolated ones and in

which it is a practical impossibility to determine the specific cost of a given sale. As the District Court commented (R. 874):

> "To determine truly the profits or losses, sales-prices must be compared with specific costs of items of manufacture of the infringing article."

That being impossible the court was confronted with three alternatives: (1) it could realistically treat the business as one continuous infringement, as in fact it was, and compute the aggregate net profit on that continuous infringement; or (2) it could treat each sale as a separate infringement, but due to the impossibility of determining actual costs on that sale, compute the profit by deducting from an average selling price for such product an average cost; or (3) it could work out an average cost based upon one continuous infringement, and then, shifting theories, contrast that average with the specific selling price received on each sale.

Both the Master and the District Court, finding the third method inequitable, as well as inconsistent with itself, adopted the first. The inequity of the third method as applied to this case arose from the fact that average costs did not in fact reflect specific costs, because, as the Master pointed out (R. 813):

> "In this particular instance, however, *average* costs do not reflect *specific* costs for many reasons, among them the following:
>
> (1) All production does not cost the same per foot in any given month due to difference in cost of glass on account of size, bracket and quality, and in cost of pyralin because of finish and size of sheet.
>
> (2) Cutting losses of different brackets of glass are not equal nor are losses in operation equal.

(3) Edge work was performed on some sales and not on others, causing a considerable spread in cost of manufacturing.

(4) The cost of an order for one thousand windshields is much less per light than the cost of an order for ten windshields, because, regardless of the size of the order, a template must be made and can be used for a thousand lights as well as ten" (italics by Master).

The District Court adopted these findings (R. 874, 1113), but the Circuit Court of Appeals, while not disagreeing with the findings (R. 913-914, 921), disagreed with the conclusion.

The Circuit Court of Appeals has apparently ruled as to the three alternatives previously mentioned (*supra,* page 58): (1) that there is a rigidity to patent accounting which excludes in every case the possibility of treating an infringement as one continuous act; (2) that there is no room for a middle-of-the-road position that, if average costs are to be used, they should be deducted from average selling prices to determine profits; and (3) that where there is in fact one continuous infringement, it is to be treated as such for the purpose of computing an average cost, which being done, the infringement is then arbitrarily broken up into a series of specific infringements and this average cost compared with specific selling prices for the purpose of ascertaining profits, regardless of the fact that the individual sales may be of a product so expensive to make that it costs much more than the average prices.

The error of the ruling. If an infringement in the course of a regular and continuous business is so much a single act that actual costs can be computed on the whole production but not on the different orders of laminated glass manufactured, even though it is known that

the cost of different orders varies considerably, then it is submitted that there has been a single continuing act of infringement and that it should be so treated not only in determining costs, but in computing revenues and determining profits.

It proves nothing to say that Duplate Corporation's own books compute costs on an average basis, because the error of the plaintiff's position is not in the computation of an average cost **but in its subtraction from the proceeds of a specific sale.** The Master found (R. 814-815):

> "the fact that the defendant's own books computed costs on an average basis does not justify the subtraction of an average cost from a specific selling price, in order to determine whether a given transaction was a loss-producing or profit-making one."

Under no circumstances should it be permissible to compute profits by deducting an **average** cost from the proceeds of a specific sale. Not only may such costs bear no accurate relation to actual or specific costs, as in the case at bar, but in every case an average cost will have, as a component part, savings effected by large scale production and manufacturing operations incident not merely to profitable, but to unprofitable, sales, while segregated selling prices will not reflect this factor. In other words, under this erroneous theory, the loss-producing sales would be used to bring about a low **average** cost, but would be ignored in the computation of the selling price.

There is another reason why this laminated glass business should be considered as a whole and not as a series of isolated infringements. The new product was in competition with plate glass which had been used in automobiles for many years. The automobile manufacturers could not be induced to purchase the new product

except at low prices. The District Court held (R. 875-876) that the low prices of laminated glass were necessary in order to compete with plate glass.[1] This was not a situation in which the defendants could set a profitable price on laminated glass. If they had done so, they would have made practically no sales. It was necessary to induce the automobile manufacturers to use the product in order to discover its merits. Therefore this was not a case of isolated sales, it was a case in which the business must be treated as a whole in order to produce any sales. This is precisely the principle that was applied in *Union Electric Welding Co. v. Curry, supra,* 279 F. 465, 467 (C. C. A., 6th Cir.), where it was held that the infringement should be treated as a whole for the purpose of permitting the infringer to deduct as an item of expense his losses for the first year of the infringement because it was "a part of the expense **incurred in working up the business** and bringing about the profits in the later period" (p. 467—black face type ours).

The authorities. The decision of the Circuit Court of Appeals that a continuous manufacture of an infringing product can under no circumstances be treated as a single continuous infringement is in conflict with a decision of the Circuit Court of Appeals for the Sixth Circuit, as well as with an earlier decision of the Cir-

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[1] Fisher, whose company purchased the glass for all closed cars of General Motors Corporation (R. 444-445), testified in substance that no consideration was given to the general use of laminated glass in Cadillac and LaSalle bodies until the Pittsburgh Plate Glass Company in 1928 offered to supply it at $1.75 per square foot, plus the cost of edge work (Fisher, R. 446-447). Downey, of the Chrysler Motors Corporation, testified (R. 495): "I still think there was no demand for laminated glass to justify paying even one-half the price that was asked for it in 1929 . . . ."

cuit Court of Appeals for the Third Circuit, where accountings were so conducted in circumstances comparable to the present case:

> *Union Electric Welding Co. v. Curry, supra,* 279 F. 465, 466-467 (C. C. A., 6th Cir.);
>
> *Macbeth-Evans Glass Co. v. L. E. Smith Glass Co., supra,* 21 F. (2d) 553, 555 (W. D., Pa.); affirmed, 23 F. (2d) 459 (C. C. A., 3rd Cir).

Judge Schoonmaker, in deciding the instant case in the District Court, relied upon the *Macbeth-Evans* case, *supra,* in ruling that the infringement should be treated as a single continuous act (R. 874). In the *Macbeth-Evans* case, the Circuit Court of Appeals has specifically approved, on all matters here material, as "an illuminating discussion of the law" an opinion of the District Court wherein it had been ruled (21 F. (2d) 553, 555):

> "While the defendant was an infringer, it was carrying on a regular and continuous business, during the period of its operations in the manufacture of the infringing lenses. In this continuous business, the infringing lenses cannot be treated separately as constituting a vast number of separate infringements."

The alternative chosen by the Circuit Court of Appeals in the case at bar, namely, a computation of profit by deducting an average cost from the proceeds of a specific sale, is in conflict with a well-reasoned opinion that such a computation should not be made where average costs do not fairly reflect actual costs: *Christensen v. National Brake & Elec. Co.,* 10 F. (2d) 856, 870,

871 (E. D., Wis.).[1] The remaining alternative, a computation of profits by the deduction of an average cost from an average selling price, although not discussed in any of the opinions in the case at bar, was applied by Mr. Justice Nelson, presiding in the Circuit Court for the Southern District of New York, in *Tatham v. Lowber,* 4 Blatch. 86, Fed. Case No. 13,765; affirmed, except as to an interest allowance prior to the date of the Master's Report, *sub nom, LeRoy v. Tatham,* 2 How. (U. S.) 132, 141.

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[1] The court there held (p. 871):

"The test for determining profit or loss by merely casting the sum of direct costs plus an allocated portion of selling, indirect or general burdens, against a selling price cannot be recognized in determining actual profit in either an *infringing* or a *noninfringing* situation. **Averaging or allocating, for cost-estimating purposes, and calculation of profits received are different. One may have as its objective prices to be asked; the other must respect prices exacted and received.**

"(10) Upon this discussion we are convinced that, when the ordinary course of manufacturing or selling is continuous, having constant factors of direct costs, variable factors of overhead and selling prices, the continuity of the process, and the unequal alliance of the constant and variable factors, at once destroy the possibility of casting an actual as distinguished from an average, profit per unit. The importance of the matter in this case is at least twofold, in that the method invoked may impose upon the defendant either an aggregate, or a so-called per unit, profit, which is greater or different than that actually received; and, secondly, in setting out infringing units beyond the field of profits, to be dealt with perhaps somewhat mandatorily as a basis for awarding damages" (black face type ours).

II.

GENERAL DAMAGES.

The applicable Federal statute (Revised Statutes, Section 4921, *infra* p. 76 provides, under the contingencies therein stated, for an award of "general damages". The statute makes no reference to a "reasonable royalty". The latter expression is used by the courts as a "convenient designation" (*Standard Brands v. Federal Yeast Corp.*, 38 F. (2d) 314, 322-D. Md.) in determining the amount of an award under the statutory provision for general damages. We believe that, even if, under the circumstances of this case, a "reasonable royalty" may be awarded, the amount so awarded by the District Court was greatly excessive[1].

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[1] The testimony of Harness (patent counsel and license negotiator for Chrysler) and Blackmore (counsel and negotiator for General Motors) that a reasonable royalty should not exceed ½¢ a square foot of laminated glass (R. 461-463, 474-477) was well reasoned and convincing. The boomerang in the alleged advertising value of plaintiff's contract with the Ford Company appears from the testimony of Downey (President of the selling subsidiary of the Chrysler Motors Corporation) (R. 485) that the Ford Company's unsatisfactory experience in attempting to manufacture the plaintiff's product was a distinct detriment to laminated glass and of Higgins (Vice President of the Pittsburgh Plate Glass Company) that (R. 634) "nothing has happened to the laminated glass business that has hurt it so much as that Ford windshield." Plaintiff's license to the Johnston Glass Company at 10¢ a square foot (Exhibit 24, R. 981) is of no consequence because there was no "satisfactory evidence of sales under it" Master's Report, R. 816-817) and because it contained no minimum royalty provision. Under the contract between plaintiff and

If this court should sustain our position that defendants are entitled to take credit for the plate glass at its market value instead of its cost of manufacture (thus increasing the loss of the defendants) or if this court should sustain our position that defendants should be permitted to examine the books and records of the plaintiff, it is obvious that a Special Master and the District Court might consider it proper to estimate a so-called reasonable royalty at an amount far less than the amount heretofore awarded as such royalty and we respectfully request the opportunity to obtain such relief. If, however, this court should rule against us upon the following three points, (a) our claim that defendants should be allowed to take credit for plate glass at its market value, (b) our claim that defendants should be permitted to examine plaintiff's books and

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the Ford Company, the latter was obligated to purchase from plaintiff for four (4) years one-half of the monthly requirements of laminated glass of the Ford Company and to pay plaintiff therefor cost plus 20¢ a windshield (R. 1015). The twenty cent figure amounted to 5¢ a square foot because a windshield contains approximately 4 square feet of glass (Master's Report, R. 822; Downey, R. 486) but the contract gave the Ford Company a free license to manufacture the remaining one-half of its requirements (R. 1015) which cut in half (or to 2½¢ a square foot) the royalty on the product manufactured by plaintiff for Ford. The great difficulties encountered by the Ford Company in attempting to develop a manufacturing technique for this product were testified to by Wibel (Director of Purchases of the Ford Company) (R. 418-421) and McCarroll (in charge of chemical and metallurgical work of the Ford Company) (R. 428-431). It is significant that, as shown by the testimony of McCarroll (R. 433-434), the plaintiff did not know how to manufacture its own product on a commercial basis.

records, and (c) our claim that a so-called reasonable royalty should not be awarded in this case in the absence of proof that plaintiff's actual damages cannot be computed and in the face of its refusal to produce its records from which such computation might be made, then we do not think we should ask this court to assume the burden of determining the question of fact whether or not $414,120.70 is a reasonable royalty, and we make no such request. We feel that if this court should decide as stated above we should accept the decree of the District Court as to the above mentioned amount of the so-called reasonable royalty. We respectfully maintain for the reasons hereinafter set forth (1) that there should not be an award of general damages in the form of a so-called reasonable royalty under the facts of this case and (2) if such award is made, interest should be allowed not from the date on which infringement ended but only from the date of the award.

1.

May General Damages Be Awarded Without Giving the Defendants an Opportunity to Calculate the Plaintiff's Actual Damages?

The ruling. The Circuit Court of Appeals has ruled (R. 919-921) that **general** damages may be awarded without regard to whether the plaintiff's **actual** damages are susceptible of calculation and determination with reasonable accuracy. The plaintiff made no attempt to demonstrate that these damages could not be calculated; indeed, it submitted some evidence in support of such a calculation (Master's Report, R. 817-819)[1]. Upon analysis by the Master it was found that there was no basis for awarding damages because of lost sales and that damages because of sales made at a reduced price had not been demonstrated to exceed $2,807.89 (R. 817-819). Nevertheless such extravagant claims of damage were bound to make an impression upon the Master's mind. In an effort to forestall the possibility that such an impression might be created by these tremendous claims "set down with delusive exactness",[2] the defendants sought the chance to demonstrate from the plaintiff's own books that its actual damages were capable of computation and that they

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[1] This evidence in the form of Exhibits 27 and 28 (R. 996) alleged damages respectively of exactly $3,188,083.66 (see R. 681) as a result of lost sales and of exactly $127,723.13 as a result of sales made at a reduced price. These enormous claims were based on the assumption that plaintiff would have made all the sales made by Duplate Corporation and would have made all sales at the much higher prices contained in plaintiff's price schedule although, as stated above (p. 50), the Master found that plaintiff's price schedule was not acceptable to the trade.

[2] Mr. Justice Holmes in *Louisville v. Cumberland Tel. & Tel Co.*, 225 U. S. 430, 436.

were small. This request (R. 529-533, 750) was resisted by the plaintiff (R. 533) and denied by the Master (R. 533, 613, 751).

The Circuit Court of Appeals sustained this ruling on the argument that an examination of the plaintiff's books would only be relevant had the plaintiff sought to recover its actual damages for lost sales. The Circuit Court of Appeals held (R. 921): "There is no prayer for an account of damages for loss of sales by the plaintiff occasioned by acts of the defendant." But in the prayers of the bill, which are set forth in the immediately preceding portion of the court's opinion, it appears under (2) "that the defendant be compelled to account for and pay to the plaintiff . . . the actual damages suffered by the plaintiff from the infringement." Plaintiff's "actual damages" include any lost sales. Furthermore, as we have shown (*supra,* p. 67), plaintiff submitted some proof of damages through alleged lost sales.

The error of the ruling. Revised Statutes, Section 4921, the controlling enactment (*infra,* page 76), did not make provision for an award of general damages in lieu of an award based upon a defendant's profits or a plaintiff's actual damages until 1922, when such provision was inserted by way of amendment. The statute squarely conditions the right to secure general damages as follows:

> "If . . . damages or profits are not susceptible of calculation and determination with reasonable certainty, . . . the court may adjudge and decree the payment by the defendant to the complainant of a reasonable sum as profits or general damages for the infringement" (black face type ours).

There is sound policy behind this statutory condition precedent, this subordination of a guess to a calculation.

If a plaintiff's actual or specific damages can be computed and a defendant's actual profits determined, there is no justification for going beyond the alternative most favorable to the plaintiff and penalizing a defendant by entering a decree for something other than that which the plaintiff has lost or the defendant has gained.

The evidence from the books was clearly relevant on the issues of (1) the extent of the plaintiff's actual damages as a possible measure of restitution; (2) whether actual damages were incapable of calculation, and general damages, therefore, permissible, and, if so, (3) whether it was true that the plaintiff should have a large award of general damages, and, on that issue, what a manufacturer of the patented article could afford to pay as a so-called reasonable royalty and continue to operate at a fair profit.[1]

The authorities. The decision of the Circuit Court of Appeals on this point is in conflict with decisions of the Circuit Courts of Appeals for the Second and Sixth Circuits, in each of which the court has ruled that it is a **statutory condition precedent** to an award of general damages (reasonable royalty) that actual damages be not susceptible of calculation and determination with reasonable certainty:

Wallace & Tiernan Co. v. Syracuse, supra, 45 F. (2d) 693, 694-695 (C. C. A., 2nd Cir.);

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[1] This formula has become the judicial yardstick by which a so-called reasonable royalty is measured: *Lockwood v. General Fire Extinguisher Co.,* 37 F. (2d) 62, 66 (C. C. A., 2d Cir.), certiorari denied, 269 U. S. 571; *Merrell Soule Co. v. Powdered Milk Co. of America,* 7 F. (2d) 297, 300 (C. C. A., 2d Cir.). **The experience of the patentee is relevant on this issue:** *Austin-Western Road Machinery Co. v. Disc Grader & Plow Co.,* 291 F. 302, 304-305 (C. C. A., 8th Cir.), certiorari denied, 263 U. S. 717; *Standard Brands v. Federal Yeast Corp., supra,* 38 F. (2d) 314, 322 (D., Md.).

Overman Cushion Tire Co. v. Goodyear Tire & Rubber Co., 66 F. (2d) 361 (C. C. A., 2nd Cir.);

Enterprise Ry. Equipment Co. v. Wine Ry. Appliance Co., 77 F. (2d) 159, 161 (C. C. A., 6th Cir.).

The Circuit Court of Appeals in the instant case conceded that the *Wallace* case is in conflict with its ruling (R. 920), but minimizes the conflict by the assertion that the case has been distinguished on its facts in *Cincinnati Car Co. v. New York Rapid Transit Corp., supra,* 66 F. (2d) 592, 595. An examination of the latter case will show that it qualified in no particular the ruling of the *Wallace* case on the issue now under discussion. Indeed the Circuit Court of Appeals for the Second Circuit specifically recognized the authority of the *Wallace* case on this issue in *Overman Cushion Tire Co. v. Goodyear Tire & Rubber Co., supra,* 66 F. (2d) 361.

2.

Interest.

The ruling. The Circuit Court of Appeals has ruled that interest on an award of general damages may be imposed from the date of last infringement. Infringement ceased on May 30, 1930, the Master's Report was made on January 12, 1934, and the decree of the District Court was entered July 2, 1934. Interest thus awarded for the period May 30, 1930, to July 2, 1934, amounts to $101,459.57 (R. 879).

The error of the ruling. Both the opinions of the District Court (R. 878) and the Circuit Court of Ap-

peals (R. 912, 919) recognize that the award in the instant case was one of "general damages". The applicable portion of the controlling statute (*infra,* page 76) speaks of "general damages", but makes no reference to a "reasonable royalty". The last mentioned expression has no status except as a label by which to measure an award of general damages. General damages are necessarily unliquidated until fixed by a master or a court. It is submitted that the ruling in the instant case that such an award should bear interest from the date of the last infringement—years prior to the liquidation of the damages—does violence to the well-established principle that unliquidated damages should not bear interest until liquidated, for not until then does a defendant have an opportunity to pay them. A contrary ruling can only be based on the specious argument that there is an analogy between general damages measured by a so-called reasonable royalty and an unpaid contractual royalty, on which latter item interest properly runs from the date when payment was contractually due. The analogy falls because it places an unliquidated tort claim on the same footing with a liquidated contractual obligation. Such an argument would have merit only in those cases where there was proof of an established royalty and damages were measured by it, for then it might be argued that the basis for computing the amount due and the time when it should have been paid could have been determined. But in the case at bar there was no such established royalty and consequently no such proof (Master's Report, R. 816-817). The argument, in the absence of an established royalty, is simply an erroneous deduction from the non-statutory yardstick or label of "reasonable royalty" illustrating again what Mr. Justice Cardozo has termed "the repression of a formula, the tyranny of tags and tickets" (44 Harvard Law Review, 682, 688).

The authorities. The decision of the Circuit Court of Appeals on the allowance of interest is in apparent conflict with applicable decisions of this Court and in clear conflict with those of various Circuit Courts of Appeals. It has long been settled by decisions of this Court that damages measured by an established profit to an infringer, being, in effect, a measure of unliquidated damages, bear interest from the date of their liquidation by an award, rather than from the date of infringement:

Mowry v. Whitney, supra, 14 Wall. (U. S.) 620, 653;

Tilghman v. Proctor, supra, 125 U. S. 136, 160-161;

Crosby Steam Gage & Valve Co. v. Consolidated Safety Valve Co., supra, 141 U. S. 441, 457-458.

Many earlier decisions of this Court to the same effect are cited in these opinions. While several recognize that interest from an earlier date may be allowed in special circumstances, such as a willful and deliberate infringement or a delay in the accounting for which the defendant is responsible, **the rule is strictly enforced that in the absence of such special circumstances interest runs only from the date of liquidation.** Thus in *Mowry v. Whitney, supra,* a decree allowing interest from an earlier date was **reversed,** the court ruling (p. 653):

> "We add only that in our opinion the defendant should not have been charged with interest before the final decree. The profits which are recoverable against an infringer of a patent are in fact a compensation for the injury the patentee has sustained from the invasion of his right. They are the measure of his damages. Though called profits, **they are really damages, and unliquidated until the decree is made.** Interest is not generally allowable upon un-

liquidated damages. We will not say that in no possible case can interest be allowed. It is enough that the case in hand does not justify such an allowance." (black face type ours).

The ruling of this Court has been consistently followed by the various Circuit Courts of Appeals in many decisions that interest on an award measured by an infringer's profits may only be allowed from the liquidation of such profits by the report of a master or the decree of a court, such cases including among others:

Stromberg Motor Devices Co. v. Detroit Trust Co., supra, 44 F. (2d) 958, 966 (C. C. A., 7th Cir.);

Metallic Rubber Tire Co. v. Hartford Rubber Works Co., supra, 275 F. 315, 324-326 (C. C. A., 2d Cir.).

Similarly the rulings of this Court on interest have been followed in cases where the award was based on a plaintiff's actual damages:

Rose v. Hirsch, 94 F. 177, 180 (C. C. A., 3rd Cir.);

[1]*National Folding-Box & Paper Co. v. Elsas,* 81 F. 197; affirmed 86 F. 917, 923 (C. C. A., 2nd Cir.).

Damages of the character ruled by the foregoing cases are obviously more nearly liquidated prior to their determination by the fact-finding body than are the "general damages" awarded in the instant case. One

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[1] Accord: *Auto Vacuum Freezer Co. v. Wm. A. Sexton Co.,* 250 F. 459, 469 (S. D., N. Y.); *Westinghouse v. New York Air Brake Co.,* 133 F. 936 (S. D., N. Y.).

would assume that the rule of this Court restricting interest to the period following the date of liquidation would be applied *a fortiori* to awards of general damages. It has been so decreed in awarding general damages measured by a reasonable royalty:

Dunkley Co. v. Vrooman, 272 F. 468, 469 (C. C. A., 6th Cir.).

Munger v. Perlman Rim Corp., 275 F. 21, 23 (C. C. A., 2nd Cir.); certiorari denied, 257 U. S., 645;

Dowagiac Mfg. Co. v. Deere & Webber Co., 284 F. 331, 350-351 (C. C. A., 8th Cir.);

Fox Typewriter Co. v. Underwood Typewriter Co., 287 F. 453, 455 (C. C. A., 6th Cir.);

The Circuit Court of Appeals in the instant case concedes that there are **"cases of equal authority both ways"** (R. 922), citing, however, three which have departed from the long-established rule. Each leans heavily on (1) circumstances indicating a willful and deliberate infringement, or (2) an unconscionable delay in the accounting for which the defendant is responsible. Such other rulings as may be cited to the same effect will be found to rest on equally peculiar circumstances or on an established royalty. This is necessarily so because, as Judge Taft remarked in *National Folding-Box & Paper Co. v. Dayton Paper-Novelty Co.,* 97 F. 331, 332, (S. D., Oh.), in reversing, on rehearing, a previous ruling of his own to the contrary.

> "an examination of all the cases in the Supreme Court shows the greatest reluctance on the part of that court to allow interest in a patent case before the master has liquidated the damages."

The Circuit Court of Appeals has ruled in the instant case that interest may be imposed for a period prior to the liquidation of general damages, although the

infringement was conducted in good faith and there is no charge of delay in connection with the accounting. It is said (R. 922) that the matter is one within the court's discretion, but it will be seen from the foregoing decisions that such discretion may be exercised only in the event of an infringement in bad faith, an unreasonable delay in accounting, or a comparable circumstance. The Circuit Court of Appeals' explanation (R. 922) that such an interest allowance was recommended by the Master is plainly erroneous, for the Master made no recommendation as to interest. The District Court acted (R. 878) on the authority of a case where the infringement had been in bad faith.

Respectfully submitted,

WILLIAM WATSON SMITH,
LEON E. HICKMAN,
Counsel for Petitioners.

APPENDIX.

Equitable compensation to a patent owner for infringement is governed by Revised Statutes § 4921, as amended by Act of March 3, 1897, c. 391, § 6, 29 Stat. 694; and Act of February 18, 1922, c. 58, § 8, 42 Stat. 392; 35 U. S. C., § 70, the applicable portions of which provide:

> ". . . upon a decree being rendered in any such a case for an infringement the complainant shall be entitled to recover, in addition to the profits to be accounted for by the defendant, the damages the complainant has sustained thereby, and the court shall assess the same or cause the same to be assessed under its direction. If on the proofs it shall appear that the complainant has suffered damage from the infringement or that the defendant has realized profits therefrom to which the complainant is justly entitled, but that such damages or profits are not susceptible of calculation and determination with reasonable certainty, the court may, on evidence tending to establish the same, in its discretion, receive opinion or expert testimony, which is hereby declared to be competent and admissible, subject to the general rules of evidence applicable to this character of testimony; and upon such evidence and all other evidence in the record the court may adjudge and decree the payment by the defendant to the complainant of a reasonable sum as profits or general damages for the infringement. The court shall have the same power to increase such damages, in its discretion, as is given to increase the damages found by verdicts in actions in the nature of actions of trespass upon the case."

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CHARLES ELMORE CROPLEY

IN THE

Supreme Court of the United States

OCTOBER TERM, 1935. NOS. 767 AND 768.

DUPLATE CORPORATION and PITTSBURGH PLATE GLASS COMPANY, Petitioners,

v.

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA, Respondent.

PETITIONERS' REPLY BRIEF.

On Writs of Certiorari to the United States Circuit Court of Appeals for the Third Circuit.

WILLIAM WATSON SMITH,
LEON E. HICKMAN,
Counsel for Petitioners.

1025 Union Trust Building,
Pittsburgh, Pa.

SMITH BROS. CO. INC., LAW PRINTERS, 208-212 GRANT STREET, PITTSBURGH, PA.

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PETITIONER'S REPLY BRIEF.

Some of the assertions in the respondent's brief force us to file this reply, much to our regret. If we undertook to discuss all of the respondent's assertions which we believe to be incorrect, it would amount to restating the positions taken in our original brief. This we shall not do. The respondent's criticism of the authorities cited by the petitioners requires no answer.

Good faith. As stated in our principal brief (p. 6), the good faith of the petitioners (hereinafter referred to as the defendants) in manufacturing and selling the product which was ultimately held to be an infringing article has been independently sustained by the Master, by the District Court (speaking by the same judge who tried the infringement issue) and by the Circuit Court of Appeals. Notwithstanding, the respondent (hereinafter referred to as the plaintiff) contends at page 46 of its brief that there is no evidence to support the findings of good faith and concludes its argument at page 48 by asserting that these findings "will always remain a mystery in this case unless this Court sees fit to brush aside the veil." Such unsupported assertions seem hardly sufficient to overcome the findings of the

Master and the two lower courts, but if this Court is interested in reading evidence which supports the finding of good faith, we respectfully refer to the testimony of Mr. Bradley (R. 653-661), patent counsel of the defendants, who examined the process in question and advised that it did not infringe.

Clearly Mr. Bradley had an adequate opportunity to form an honest opinion, as his testimony shows. He devoted his entire time to patent affairs of the Pittsburgh Plate Glass Company and was a patent attorney of long experience (R. 653). He was in close touch with the officials of Duplate Corporation (then known as Pittsburgh Safety Glass Co.) and advised them on several occasions (R. 654). He knew of the research work of the Pittsburgh Plate Glass Company and that it had been going on for a long time, and he undertook his own study in November and December, 1927 (R. 654), which was before infringement (Finding No. 1, R. 827). He made a thorough study of all patent literature on the subject (R. 655). He consulted with the attorneys of Dupont Viscoloid Company (which owned fifty per cent. of the stock of Duplate Corporation) early in 1928 and had the benefit of collaboration with consulting engineers of Pittsburgh Plate Glass Company and the patent attorney for the Dupont organization (R. 657). As a result of this investigation the defendants were so certain that their operation involved no infringement that they invited officials of the plaintiff to inspect the complete operation, which invitation was accepted (Bradley, R. 660; plaintiff's vice president, Edwards, Infringement Record, R. 58; plaintiff's president, Haskell, Infringement Record, R. 61). The record on the infringement, as distinguished from the accounting, aspect of this case has been filed with the clerk of the Court as an original exhibit, pursuant to stipulation (R. 909).

Mr. Bradley was influenced by three separate lines of reasoning: (a) The first eleven claims of the patent (which is shown at page 175 of the aforementioned infringement record) called for the use of a dehydrating agent for the removal of moisture from the gelatin, which the patent designated as an adhesive. The twelfth claim (the one in suit) called for gelatin "substantially free from contained moisture, **as described**" (black face type ours). Mr. Bradley believed (R. 655-656, 658-659), until the lower court ruled otherwise, that the quoted language referred to gelatin which had been dehydrated by a chemical agent, such as alcohol. **This was a rational construction of the patent, because ten of its preceding claims called for a "volatile, hygroscopic liquid", and the third claim specifically spoke of "ethyl alcohol" as a dehydrating agent.** (b) Mr. Bradley believed (R. 655, 658-659), as did the defendants' research department, that the gelatin as used by the defendants contained much more moisture than the ten (10) to thirteen (13) per cent. found in commercial gelatin (plaintiff's witness, Morgan, at R. 39 of the Infringement Record, aforementioned). Defendants' research department performed many experiments to determine the percentage of moisture in the gelatin after it dried, and testimony concerning that research was given to the District Court (Infringement Record, aforementioned, R. 27-28, 68-120). It was undisputed that the gelatin solution was originally ninety-seven (97) per cent. water (Infringement Record, Sherts, R. 27 and plaintiff's witness, Morgan, R. 37). The difficult nature of these experiments to determine the ultimate moisture content is apparent when we realize that the research department was weighing a sheet of glass covered with a gelatin film one-ten-thousandth of an inch thick (Infringement Record, Sherts, R. 28, 29 and plaintiff's witness, Morgan, R. 45) for the purpose of de-

termining the percentage of evaporation in the gelatin. While the lower courts ultimately held in the infringement suit that the cementing gelatin used by the defendants had practically the same moisture content as that used by the plaintiff, it was not held or even intimated that there was anything but an honest difference of opinion in the matter. Quite the contrary, as evidenced by the later holdings of good faith (District Court, R. 873; Circuit Court of Appeals, R. 912). (c) Mr. Bradley's only false reliance was on the fact that **a company known as Safetee Glass Company had been using a process, on which that of the defendants was patterned, for ten years or more without objection from the plaintiff** (Bradley, R. 656). It is in the record (R. 656) that the plaintiff's suit subsequently brought against the Safetee Glass Company in November, 1930, was dismissed because of laches: *Triplex Safety Glass Company of North America v. Kolb,* 53 F. (2d) 1062, 1064-1065 (E. D., Pa., 1931, opinion by Judge Kirkpatrick).

Plaintiff asserts at page 3 of its brief that the defendants disregarded the advice of their patent counsel by using heat (an air dryer) to dry the gelatin. The fact is that the defendants did not disregard the advice of their patent counsel. As to the use and purpose of the air dryer, it was the uncontradicted testimony in the infringement trial (Sherts, Infringement Record, R. 30) that:

> "This dryer is used less than thirty per cent. of the time; we use it in the morning when the conveyor is cold, or during a very cold day before the room is warmed up. The purpose of using the dryer is to dry up the superfluous moisture which gathers in globules on the top of the gelatin, and which would tend to make a smear when the

products is assembled, or would rub off certain areas." (black face type ours).

Plaintiff asserts at page 18 of its brief that Duplate Corporation "was formed for the express purpose of infringing this patent." The real story behind the organization of this corporation refutes the assertion. By the fall of 1927, developments in the pyralin industry and particularly newly-discovered means of protecting pyralin against discoloration, led the Pittsburgh Plate Glass Company to believe that the principal manufacturing obstacle was in a fair way to being overcome (Higgins, R. 689-690). Later manufacturing difficulties, particularly edge separation, were not foreseen (Higgins, R. 691; Clause, R. 256). The Pittsburgh Plate Glass Company had an experienced glass-manufacturing organization and valuable contacts with the automobile industry, while Dupont Viscoloid Company was a large and efficient manufacturer of pyralin. Both companies had made many developments of their own on various phases of the laminated glass business, and the research departments of both organizations had experimented with laminated glass for years (Higgins, R. 690-691; Bradley, R. 654). The Dupont Viscoloid Company felt that the time was ripe to go into the laminated glass business, either with the Pittsburgh Plate Glass Company or alone (Higgins, R. 690). In that perfectly legitimate state of mind and **before manufacturing operations were started** (Bradley, R. 654; Master's Report, R. 827-828), both companies turned to their patent counsel for advice.

One is left with the inference at page 6 of plaintiff's brief that the defendants' operating losses are proof of "an inordinate haste to rush into the laminated glass business" and, therefore, of bad faith. The real explanation lies in the fact that the process of lami-

nation looked perfectly simple before one got into it (Clause, R. 256). Neither experience in the manufacture of plate glass or pyralin revealed the complications that would result from attempting to adhere the two articles into a sheet of laminated glass. There had been no comparable large scale operation. No one could foresee these difficulties or the long period of trial and error required to develop a fit process and product (Master's Report, R. 804-807; District Court, Opinion, R. 874-875; Sherts, R. 316-321, 325-361, 394-414; Clause, 255-257, 261-287). Nor should one lose sight of the fact that in dealing with the automobile industry one is under obligation to make deliveries on schedule, difficult or wasteful as that may be, in view of the other manufacturing commitments of the automobile industry with which such deliveries must synchronize (Clause, R. 255).

It is apparently claimed that the defendants willfully infringed the plaintiff's patent in order to seize a market for laminated glass already established by the plaintiff (Respondent's Brief, pp. 3, 48). But the Master has found (R. 823), on the basis of undisputed testimony which he carefully reviewed (R. 821-823) that there was not a substantial demand for laminated glass at any time during the accounting period, much less prior to that time.

It is apparently argued at pages 3-4, 19 and 48 of plaintiff's brief that defendants' price policy was dictated by a desire to keep laminated glass business from the plaintiff. In reality it was directed at a recalcitrant automobile market and the necessity of getting one or more manufacturers to use laminated glass as standard equipment (Master's Report, R. 821-823, 826; Higgins, R. 623; Fisher, R. 446-447; Petitioner's Brief, pp. 47-51, 61).

Wastage. The plaintiff induced the Circuit Court of Appeals to believe that the Master had held that the entire sum of $1,477,364.84 represented rejects and returns of defective laminated glass, that is, a finished product which turned out to be defective. As a matter of fact, the Master found to the contrary, as demonstrated in our principal brief (pp. 19-20). Concerning this wastage item, we submit, with deference, that the Circuit Court of Appeals committed two errors: first, in interpreting the Master's Report to mean that the entire item of $1,477,364.84 represents finished laminated glass; second, in disallowing this item on any theory. Plaintiff asserts (Brief, p. 8) that it was the duty of the defendants to show how much of this item represented finished defective laminated glass and how much was lost in the process before a finished article was reached. It is also claimed at page 7 of the plaintiff's brief that "There is not a scintilla of evidence in the record by which this segregation may be made, except in so far as it has been conceded by the plaintiff." Both assertions are plainly erroneous, but, in any event, the defendants have supplied this proof in Exhibit "O" (R. 1045).

Exhibit "O" was accepted by the Master in its entirety with the single exception that the plate glass wastage was computed at the bare manufacturing cost rather than at market value (R. 844 A). The Master did not separate the items of loss for product found to be defective **before** it reached the finished form from the items of loss for product found to be defective **after** it reached finished form. The records of defendant as to factory operating losses are full and complete (Master's Report, R. 808), and this separation could easily have been made by the Master. He did not make it because, in his judgment and properly so, defects in manufacture constituted wast-

age, whether the defects were discovered before or after the articles reached finished form, if the resulting losses therefrom "were unavoidably concomitant with the manufacture of the good finished product" (Master's Report, R. 808-809). The separation in question can be made from Exhibit "O", which sets forth the details of defendants' losses, month by month, **separately for each department** in feetage and in dollars, with the labor items included in the cost figure set opposite the Duplate feetage. This permits exactly the segregation which plaintiff now asserts is impossible. In demonstration of this fact: All of the losses set forth in Exhibit "O", except those under the heading "Loss in Finished Stock" or "Finished Stock Loss" are losses which necessarily occurred **prior to the completion of a laminated glass product** and, by computation, constitute about ninety-four per cent. of the defendants' factory operating losses as listed in that exhibit. The total losses as therein shown amount to $1,662,637.49, of which only $102,560.29, or approximately six per cent., constituted loss on finished product. The items in Exhibit "O" aggregating this amount have been segregated and listed in Schedule 1 attached to this brief. The losses set forth in Exhibit "O," when adjusted to reflect merely the bare manufacturing cost, as distinguished from the market price, of plate glass, came to $538,019.87 for factory wastage exclusive of plate glass, and $435,207.52 for the plate glass in such wastage (Petitioners' Brief, pp. 15-16), aggregating $973,227.39. The same percentage above mentioned (six (6) percent.) applies to the items of $538,019.87 and $435,207.52 making up this total. Customers' returns of laminated glass found by them to be defective are not included in Exhibit "O", but form separate items (Master's Report, R. 844 A - 844 B). Plaintiff asserts on page 8 of its brief that throughout this liti-

gation everyone has treated this item of wastage as representing "completely fabricated but defective laminated glass". This assertion is plainly erroneous. The item was never so treated by anyone in the litigation until the plaintiff induced the Circuit Court of Appeals to place this erroneous interpretation upon the Master's Report. Assuredly the Master had no such thought (R. 804-807). Plaintiff's contention to the contrary puts it **in the indefensible position of arguing that a factory making a composite structure out of sheets of material so fragile as plate glass sustained no operating losses except in finished product.** We respectfully submit that every dollar of the item of $1,477,364.84 was improperly rejected by the Circuit Court of Appeals.

We have pointed out at page 22 of our original brief that in our opinion the Circuit Court of Appeals erred in disallowing the item of $219,036.93 for pyralin losses.

We submit that *Westinghouse Elec. & Mfg. Co. v Wagner Mfg. Co.*, 225 U. S. 604, cited at page 8 of plaintiff's brief, has no bearing on the issue of wastage. In the *Westinghouse* case the Master found (p. 616) that the defendant infringer had netted $132,000 of profits from the sale of the infringing transformers. The defendant infringer then offered evidence to show that it had made non-infringing and valuable improvements to the infringing article which had contributed to the profits. This court held that plaintiff, having shown that defendants obtained profits from the infringement and it further appearing that the defendant had commingled and confused the parts composing the profits, the burden was on the defendant to show what the proper divisions of the profits should be and, if it was impossible to make an apportionment thereof, then all of the profits should go to the plaintiff. In the opinion of this court it is said

(p. 622): "But such burden is not imposed by law; nor is it so shifted until after the plaintiff has proved the existence of profits attributable to his invention and demonstrated that they are impossible of accurate or approximate apportionment." In the *Westinghouse* case the profits were ascertained and found by the Master and **the question was how they should be divided. In the case at bar the question is whether there were any profits and what are proper cost items to deduct in determining that question.** There is no question here of commingling or confusing the various parts (some patented and some unpatented) of an invention or of the profits therefrom, as there was in the *Westinghouse* case.

Plate glass accounting. The assertion in the brief for the respondent (p. 18) that there was no market for one-eighth-inch plate glass in the automobile industry overlooks the fact that the use of one-eighth-inch plate glass in automobiles displaced the one-quarter-inch glass which the Pittsburgh Plate Glass Company was theretofore selling and that one-eighth-inch plate glass had a well-established market at and prior to the period of infringement (Petitioners' Brief, pp. 34-35; see Respondent's Brief, p. 10).

Plaintiff asserts (Brief, p. 22) that if the rule of the *Barber* case is applied, the Pittsburgh Plate Glass Company will be permitted to retain for itself a profit of $2,465,600.41 and refers to the schedule attached to the Master's Report in support of this. The Master finds nothing of the kind and it is not the fact. On the contrary the Master found that the defendants operated at a net loss of $276,857.47 on the basis of putting one-eighth-inch plate glass into the account at cost (Findings Nos. 5 and 19; Conclusion No. 2; R. 828, 830).

Plaintiff makes the further assertion (Brief, p. 19) that it was the infringers' preconceived plan to charge

a large profit for the raw material and then to sell the complete infringement at or below cost. It is rather hard to reconcile the assertion with the fact that the raw material was sold to Duplate Corporation at ten per cent. below the prevailing market price (Petitioners' Brief, p. 33).

Damages. Plaintiff makes repeated reference (Brief, pp. 3, 5, 41) to its original investment of $2,800,000 in the laminated glass business. The interjection of the companion assertion that this investment was lost (Brief, pp. 3, 5, 41) and that the plaintiff sold out at forced sale (Brief, p. 41) is without justification in the record. As to its justification in fact, we cannot know, for the plaintiff was successful in keeping its books and records out of this case (Petitioners' Brief, pp. 67-68). How much of this so-called investment went to the promoters for their patents or good will, how much was expended for promotional services or invested in a plant at Hoboken which the plaintiff abandoned in the spring of 1928 (Haskell, R. 151) could doubtless have been developed had the defendants been permitted to make an examination of the plaintiff's books. The price at which the plaintiff sold its business could also have been determined.

Plaintiff speaks (Brief, pp. 3, 41) of an advertising expenditure of $15,000,000 by the Ford Motor Company, as if it were advertising of plaintiff's glass; whereas, in fact, it was the **Ford car** rather than any particular feature of the car that was being advertised (Master's Report, R. 825). Plaintiff, of course, did receive the benefit of any advertising value arising from the fact that its laminated glass was being used in the car. We have shown in our principal brief (pp. 48, 64-65) that the unfortunate experience of the Ford Motor Company with the plaintiff's laminated glass not only deprived the plaintiff of any advertising value in this contract, but

was also a serious detriment to the laminated glass business.

Plaintiff asserts (Brief, p. 40) that defendants' counsel have garbled the sense of Section 4921 of the Revised Statutes. There has been no garbling. The pertinent portion of Section 4921 is correctly set forth on page 68 of the petitioner's brief both in words and in meaning, and there is no abuse of the asterisks indicating omissions. The entire Section, in so far as it concerns patent accounting, is set forth at page 76.

Plaintiff charges (Brief, p. 40) that defendants' counsel disclose "a rather amazing misconception of the law." The law is a large subject. Candor compels us to admit that on occasion we have misconceived it. But we think that this is not one of those occasions. Our statement that brought this rebuke upon us was that legislative recognition of general damages was first accorded in 1922.

Interest. The decisions of this Court cited by the plaintiff (Brief, p. 45) in support of the principle that interest is a discretionary matter are inapplicable to the instant case. *Bates v. Dresser,* 251 U. S. 524, 531, simply sustained, as an exercise of discretion, a partial allowance of interest dating from the decree of the District Court. In the instant case interest was allowed for a period of three and one-half years **prior to the Master's Report.** *Miller v. Robertson,* 266 U. S. 243, 258, was an action for a breach of contract where "the elements necessary to a calculation . . . were known or ascertainable" from the date of the breach. The case at bar is an **unliquidated tort action.**

Respectfully submitted,

WILLIAM WATSON SMITH,
LEON E. HICKMAN,
Counsel for Petitioners.

SCHEDULE 1.

Exhibit "O" shows the following factory operating losses (including plate glass) under the heading "Loss in Finished Stock" or its equivalent:

Page	Month		Duplate feet	Amount
	January-			
6	July,	1928	21527	$39,798.41
11	Nov.	1928	742–9	1,366.44
12	Dec.,	1928	133	238.58
13	Jan.,	1929	3326	5,966.84
13	Feb.,	1929	1149	2,118.97
14	April,	1929	641	1,222.45
16	May,	1929	352	621.03
17	May,	1929	2362	3,526.18
18	June,	1929	1343	1,782.55
19	July,	1929	2000	2,429.48
20	August,	1929	17177	21,986.90
20	August,	1929	....	314.98
21	Sept.,	1929	405	551.48
22	Oct.,	1929	576	744.99
23	Nov.,	1929	3450	4,683.03
24	Dec.,	1929	9442	13,835.93
25	Jan.,	1930	286	375.43
26	Feb.,	1930	4	5.29
27	March		57	75.30
28	April		48	63.06
29	May		683	852.97
	Total		65,703–9	$102,560.29

IN THE

Supreme Court of the United States

Nos. 767 and 768.
OCTOBER TERM, 1935.

DUPLATE CORPORATION and PITTSBURGH PLATE GLASS COMPANY,

Petitioners,

v.

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA,

Respondent.

RESPONDENT'S BRIEF ON PETITION FOR WRITS OF CERTIORARI.

AMBROSE L. O'SHEA,
WILLIAM B. GREELEY,
DRURY W. COOPER,
Counsel for Respondent.

150 Broadway,
New York, N. Y.

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IN THE

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OCTOBER TERM 1935.

DUPLATE CORPORATION AND PITTSBURGH PLATE GLASS COMPANY,
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v.

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA,
Respondent.

BRIEF FOR THE RESPONDENT IN OPPOSITION TO THE PETITION FOR WRITS OF CERTIORARI.

Correction in the Petition.

On page 1 of the petition, it is stated that the account is for the infringement of a "patent covering a process". This is inaccurate. The only claim involved in the litigation is for the product "laminated glass". The distinction between an accounting for the infringement of a *product* as distinguished from a process is important, and should not be lost sight of.

The Supplemental Consent Decree (R. 40) was based on a Supplemental Bill of Complaint (R. 24). The whole theory of the Supplemental Bill and Supplemental Decree is to hold Pittsburgh Plate Glass Company as the *alter ego* of Duplate Corporation and to hold Pittsburgh Plate Glass Company as directly responsible for the infringement which is the subject of this accounting proceeding (R. 1052).

Argument

The Petition requests this court to review the decree of the United States Circuit Court of Appeals for the Third Circuit. That court decreed that the District Court for the Western Disrict of Pennsylvania had committed errors of law in stating a patent account and remanded the case to the District Court with instructions that the District Court restate the account in accordance with the law of the case as settled by the opinion of the Third Circuit Court of Appeals (*Pittsburgh Plate Glass Co.* v. *Triplex Safety Glass Company of North America*) (R. 1152).

There is presented to this Court, therefore, the ordinary patent accounting between private parties. The only issues presented are whether specific claimed sums are properly chargeable as costs or allowances against profits in a patent account. No special or important reason is presented in the petition why the extraordinary remedy of a writ of certiorari should issue in the instant case.

There is no conflict between the decision of the Third Circuit Court of Appeals and any decision of the Supreme Court of the United States.

There is no conflict between the decision of the Third Circuit Court of Appeals and the decisions of any other United States Circuit Court of Appeals on the particular points involved in this case.

The decision of the Third Circuit Court of Appeals does not depart from the rules governing the determination of the issues involved in this case.

There is presented by the petition no question of importance to the public.

Section 5 of Rule 38 of the Supreme Court of the United States.

Forsyth v. *Hammond*, 166 U. S. 506, 514. (April 19, 1897, Justice Brewer).

I.

The Cost of Manufacturing Defective Product.

The terms "wastage" and "factory operating losses", as used in the Petition and brief in support thereof, are misleading unless accurately defined. Those terms must be read as being synonymous with "defective product" because, whenever throughout this litigation the terms "wastage", "factory operating loss" "rejects" and "returns" were used, either by the parties, the Master, the District Court, or the Circuit Court of Appeals, they were intended to mean defective product, which was either "rejected" in petitioner's factory, or "returned" by the customer. (R. 1017-1021; 1105; 1157).

All other "wastage" and "factory operating losses" which the petitioner was able to prove was allowed as an item of expense in the account. Accordingly, therefore, in this brief, we shall use the term "defective product" in referring to this item.

The Ruling. The first point raised by the Petition and argued in the brief in support thereof, is that the Third Circuit Court of Appeals refused to allow the petitioner to include in its cost of manufacture, the cost of manufacturing such of its product as had not been sold because it was defective, or, if it had been delivered to a customer, was returned for the same reason (R. 1157).

That precise point was decided by the Supreme Court of the United States in *Crosby Steam Gage & Valve Co.* v. *Consolidated Safety Valve Co.*, 141 U. S. 441, 454 (November 2, 1891, Justice Blatchford). There the Supreme Court, after a review of its own decisions, and the decisions of other Federal Appellate Courts, holds that a claim for the allowance of the cost of making defective product is not permissible in a patent infringement account, saying that the only subject of inquiry is the profit made by the infringer

on the articles it sold at a profit and for which it received payment, and that such losses incurred by the infringer through its wrongful invasion of the patent are not chargeable against the owner of the patent nor can their amount be deducted from the compensation which the owner of the patent is entitled to receive.

The attempt on the part of petitioner to limit the scope of the *Crosby* holding to the cost of making experiments is in disregard of the plain and unmistakable language of the Court.

The same principle is enunciated in *Callaghan* v. *Myers*, 128 U. S. 617 (December 17, 1888, Mr. Justice Blatchford). In this case the defendant was not permitted to charge the cost of producing copies of the infringing *book* which it did not sell.

Ever since the Supreme Court made its pronouncement in the *Crosby Case*, that case has been considered as enunciating the principle of law to be followed in subsequent accounting cases. The Third Circuit Court of Appeals in the instant case has followed the holding of that decision.

So far as counsel has been able to find after diligent search, no United States Circuit Court of Appeals has departed from the decision in the *Crosby Case*. But on the contrary both the United States Circuits Courts of Appeals and the District Courts have consistently followed the principle enunciated in the *Crosby* and *Callaghan* cases.

In *McKee Glass Co.* v. *H. C. Fry Glass Co.*, 248 Fed. 125 (C. C. A. 3rd Jan. 29, 1918, Woolley, C. J.) at page 128, it is held that the infringer's contention that the plaintiff was entitled only to net profits after deducting the losses on some sales from the profits on others, was not tenable for the reason that losses incurred by an infringer through its wrongful invasion of plaintiff's patent are not chargeable to the plaintiff, citing the *Crosby Case*.

In *Permutit* v. *Refinite Co.*, 27 F. (2d) 695 (C. C. A. 2nd, July 9, 1928, L. Hand, C. J.) at page 698 the holding is

that a plaintiff has the right of taking into account only profitable sales and ignoring the unprofitable sales.

In *Oil Well Improvements Co.* v. *Acme Foundry & Match Co.*, 31 F. (2d) 898 (C. C. A. 8th, March 19, 1929, Stone, C. J.) at page 900 the holding is that the manufacturing cost of infringing devices on hand, at the end of the infringing period, less their junk value, cannot be deducted from profits on devices sold by the infringer.

The Asserted Conflict: In spite of the petitioner's reckless manner of citing cases as standing for propositions of law that it is impossible to find therein, we confidently assert that no case of any Circuit Court of Appeals of the United States will be found in conflict with the decision in the *Crosby* case, and therefore of course in conflict with the holding of the Third Circuit Court of Appeals in the instant case.

As we shall now show the citations made in petitioner's brief in no way appertain to the question decided in the instant case by the Circuit Court of Appeals for the Third Circuit, and therefore in no way conflict with that decision or the decision of this court in the *Crosby* case.

In *Permutit Co.* v. *Refinite*, 27 F. (2d) 695, at the cited page 697, the discussion relates (1) to whether advertising expenses should be allowed as a deduction; (2) to deferred selling expenses; (3) to a situation where the infringer was obligated, under a guaranty contract, to return the whole or some part of the purchase price paid by his customer, the Court holding that the infringing accountant is entitled to an allowance for so much of the purchase price as the infringing accountant has returned to the purchaser. In the instant case, all credits for returned goods were duly and properly given the infringing accountant by striking from the account the entire purchase price.

In *Stromberg Motor Devices Co.* v. *Zenith Detroit Co.*, 73 F. (2d) 62, at the cited pages 64-65, the discussion relates to (1) whether some of the alleged infringements fall within the claim of the patent sued on; (2) whether the patent sued

upon gave the entire salable value to the infringements; (3) whether where a patent gives the entire value to the combination the owner of the patent is entitled to recover all the profits; (4) whether an infringer is entitled to a deduction for interest on invested capital; (5) whether an appellant is entitled to argue a point not assigned as error; (6) whether Federal income taxes are properly deductible; (7) whether an infringer is entitled to a deduction for an amount paid its president, under an agreement which entitled him to a stated salary, plus percentage of the profits; (8) whether royalties paid to a third party under patents covering improvements in the infringed product are properly deductible.

In *Levin Bros.* v. *Davis Mfg. Co.*, 72 F. (2d) 163, at the cited pages 165, 166, the discussion relates to (1) overhead, obviously referring to administrative overhead; (2) a general definition of the term "profit" as that term is affected by overhead; (3) which party should pay the costs incident to the account.

In *Wallace & Tiernan Co.* v. *Syracuse*, 45 F. (2d) 693, at the cited page 695, the discussion relates to (1) whether the evidence in the case was sufficient to establish a fixed royalty; (2) whether the evidence with respect to lost sales was sufficient to base a recovery on that measure of damage; (3) whether on a patent covering a building operation, the patentee is entitled to recover all the profits or only so much thereof as his patent contributed thereto; (4) the right of the court to award treble damages.

In *Stromberg Motor Devices* v. *Detroit Trust Co.*, 44 F. (2d) 958, at the cited pages 963, 964, the discussion relates to (1) whether royalties paid to a third party for a patent which is included in the infringed article are properly deductible; (2) whether the salary and commissions paid the president of the infringer is properly deductible; (3) whether interest on investment is properly deductible; (4) whether the profits as found should be augmented by the item "good-will".

In *Oil Well Improvements Co.* v. *Acme Foundry & Machine Co.*, 31 F. (2d) 898, at the cited page 900, the discussion is as to whether an infringer is entitled to charge into his cost, the manufacturing cost of making goods which were left on his hands at the end of the infringing period. The holding is that he is not, citing the *Crosby* Case, as authority therefor.

In *L. P. Larson Jr. Co.* v. *Wm. Wrigley Jr. Co.*, 20 F. (2d) 830, at the cited pages 832, 834, the discussion relates to (1) whether the owner of the brand "Doublemint" is entitled to recover all the profits for the defendant's unfair competition, even though the basis of the award might permit recovery of a larger sum than would likely have been the net profits of the injured party. The holding is that the basis of the award would not be disturbed. (2) Whether amounts spent for advertising are properly deductible. (3) Whether federal income and profits taxes are properly deductible.

In *Union Elec. Welding Co.* v. *Curry*, 279 Fed. 465, at the cited page 467, the discussion relates to the propriety of offsetting the losses made in one year against the profit made in a subsequent year. The case cites with approval the *Crosby* Case, *supra.*

It ought not to be necessary to digest the cases in the Third Circuit Court of Appeals, viz., *Continuous Glass Press Co.* v. *Schmertz Wire Glass Co.*, 219 Fed. 199, and *MacBeth Evans Glass Co.* v. *L. E. Smith Glass Co.*, 23 F. (2d) 459, because both those cases were specifically called to the attention of the Third Circuit Court of appeals and they were clearly not overlooked. It is to be presumed that the Third Circuit Court of Appeals in deciding the instant case, knew the scope and extent of its decisions in the *Continuous Glass* Case and the *MacBeth Evans* Case.

It is important to note, however, that in the *MacBeth Evans* Case, supra, the question did arise as to whether an infringer could charge into his account as a part of his cost, the cost of making some lenses that were unsold. The

Court refused to allow such a charge after explaining its decision in the *Continuous Glass* Case, citing with approval *Callaghan* v. *Myers* and the *Crosby* Case, *supra*.

Accordingly, the citations in petitioner's argument under this point do not disclose any conflict between the Third Circuit Court of Appeals in the instant case, and the decisions of this Court, or the decision of any other Circuit Court of Appeals of the United States.

II.

Whether Thin Plate Glass May be Charged in the Account at Cost or Market Value.

The Ruling. The second point raised in the Petition and argued in the brief in support thereof relates to the conclusion of the Third Circuit Court of Appeals that in view of the fact situation peculiar to the instant case, the Pittsburgh Plate Glass Company could charge only the actual manufacturing cost of the one-eighth inch plate glass that it incorporated in the infringing product, laminated glass.

Obviously a conclusion of law predicated upon a particular factual situation can not fairly be said to be in conflict with another conclusion of law predicated upon an entirely different factual situation. Three separate forums and five individual judges have rendered five separate opinions (R., 1052, 1095, 1006, 1102, 1152) on this point, all of which are in agreement that the conclusion reached by the Third Circuit Court of Appeals is necessary and inevitable in view of the facts presented.

It is a truism that there are few, if any, absolutes in the law. "It is idle, therefore, to say that any hard and fast rule can be made applicable to all cases where profits are to be accounted for. The court and the accounting officer will consider each case in the light of its own peculiar char-

acteristics and deal with it practically and in a common sense manner."

Conroy v. *Penn. Electrical Mfg. Co.*, 199 Fed. 427, 429 (C. C. A. 3rd, October 11, 1912, Witmer, D. J.);

Armstrong v. *Belding Bros. & Co.*, 297 Fed. 728, 732 (C. C. A. 2nd, Feb. 4, 1924, Hough, C. J.; certiorari denied 265 U. S. 585);

Levin Bros. v. *Davis Mfg. Co.*, 72 F. (2d) 163, 165 (C. C. A. 8th, July 5, 1934, Stone, C. J.).

It is also idle to say that the Third Circuit Court of Appeals has laid down a hard and fast rule of patent accounting that only the manufacturing cost of a raw material that goes into the infringement may be charged in the account. All that it has done is to refuse to disregard the facts as found by the District Court and the Master and has applied the appropriate rule to those facts.

The factual situation referred to by the Third Circuit Court of Appeals as being present in the instant case is:

1. That Pittsburgh Plate Glass Company with full knowledge of the patent accomplished its infringement through its creature Duplate, which was formed for the express purpose of infringing this patent (R., 24-40; 1007);

2. That there was no market and therefore no market value for the sale of one-eighth inch plate glass to the automobile industry (R., 1055);

3. Laminated glass displaced the heavier grades of plate glass in automobile construction (R., 1055);

4. That respondent by its own efforts and at substantial expense had, at the time the infringement began, established a market for laminated glass (R., 1041; 1047);

5. If Pittsburgh Plate Glass Company had not infringed the patent in suit, it would not only have failed to sell one-eighth inch plate glass to the automobile industry, except to this respondent or its licensees, but would also have lost the sale of heavier plate glass which laminated glass displaced (R., 1057);

6. That the plate glass manufactured by it for incorporation in the infringing device represented just so much that it would not otherwise have sold, and returned a profit which it would not have made save for the infringement (R., 1058);

7. That Pittsburgh Plate Glass Company carried on a cut price policy in competition with respondent, the effect of which was to drive the respondent out of the laminated glass business (R., 1042);

8. That to permit Pittsburgh Plate Glass Company to charge in this account, the billing price for one-eighth inch plate glass to its *alter ego,* Duplate, would have the effect of allowing the infringer to retain all the profit it made on the sale of the infringing product, thereby defeating the very purpose of the patent laws (R., 1059);

9. That the market for one-eighth inch plate glass was created by the Pittsburgh Plate Glass Company's infringement, since it would not have sold one foot of one-eighth inch plate glass to the automobile industry except for its infringement (R., 1061).

The Asserted Conflict. Based on those facts, and the "practicability and reasonableness of the results", the Master (R., 1009, 1063), the trial court (R., 1098) and the Third Circuit Court of Appeals (R., 1165) have concluded that the rule of law applicable to this case is that announced in——

> *Armstrong* v. *Belding,* 297 Fed. 728, 732 (C. C. A. 2nd, Feb. 4, 1924, Hough, C. J.; certiorari denied 265 U. S. 585).

That case involved a patent on a holder for skein silk. Defendant enclosed in the patented holder some skein silk, an article of commerce (having an old and established market value) manufactured by it. The court, rejecting defendant's contention, held that it was not entitled to charge in its account the market value of the skein silk sold in the infringing holder (R., 1061) because of the peculiar facts there present, stated at page 732:

"What created the demand so supplied was not the desirability of the old silk but that of the new holder, and the language quoted above from the *Vandenburgh* Case is wholly applicable; defendant would not have sold a pound of holder silk had it not availed itself of plaintiff's patent, therefore, it must pay the profit on all sales so made."

II-(A)

The Court of Appeals' Refusal to Apportion the Profits between the Infringing Patent and Patents Covering Apparatus for making Plate Glass.

The Ruling. The Third Circuit Court of Appeals has ruled that where the entire commercial value of a mechanism or product arises from the patent, the owner of the patent is entitled to recover from the infringer the total profits derived from the manufacture, use or sale of the mechanism or product (R., 1158).

This and this alone is the ruling that petitioner must show to be in conflict with the decisions of this Court or other Circuit Courts of Appeals.

The twenty-six patents owned by the petitioner were in no way related to the product, laminated glass, nor plate glass, nor to any operation in the manufacture of laminated glass. They covered details of apparatus which was used by Pittsburgh Plate Glass Company for the manufacture of plate glass, some of one size of which was used by it in manufacturing laminated glass. The unpatented method of making plate glass by the use of this patented apparatus is referred to in the record as the "continuous process".

The petitioner would have the court compare the up-to-date facilities for making plate glass with the less efficient facilities of the past and, since those better facilities enabled it to more effectively infringe the patent in suit, because it could manufacture one of the raw materials at a lesser cost and also, of course, undersell the owner of the patent to such an extent as to drive it from the lami-

nated glass business, to conclude that the savings thereby effected out of the profits it made from the infringement should go to it. That is, Pittsburgh Plate Glass Company pockets the large profit accruing from its billing price to its *alter ego*, Duplate, the latter then fabricates the thin plate glass into the infringing product and delivers it back to its *alter ego*, Pittsburgh Plate Glass Company, the latter thereupon sells it far below Respondent's prices and far below what Pittsburgh Plate Glass Co. says is the cost. Surely an Equity Court can find some way to prevent such an injustice.

The Third Circuit Court of Appeals predicated its ruling on the fact that the sales value of the laminated glass was in no way enhanced by the fact that one of its component parts, thin plate glass, could be manufactured more cheaply by the use of the "continuous process" than without such process (R., 1158).

It is to be presumed that the Third Circuit Court of Appeals also had in mind its opinion on the prior appeal (42 F. (2d) 739) in which Judge Buffington found that the patent in suit is a pioneer patent and also the opinion of Judge Schoonmaker (42 F. (2d) 737) wherein Judge Schoonmaker found that we are dealing here with a new article of manufacture, never before the issuance of the Benedictus patent in suit known to the glass, automobile or any other industry.

We confidently assert that the ruling of the Third Circuit Court of Appeals in this respect is not only in harmony with the decisions of this Court, but that no decision of any Circuit Court of Appeals will be found making a contrary ruling.

Some of the decisions of this Court and of Circuit Courts of Appeals in harmony with the ruling in the instant case are:

Westinghouse v. *Wagner Mfg. Co.*, 225 U. S. 604, 614 (June 7, 1912, Justice Lamar);

Crosby Valve v. *Safety Valve*, supra;

Manufacturing Co. v. *Cowing*, 105 U. S. 253, 255 (October 1881, Chief Justice Waite);

Carborundum Co. v. *Electric Smelting Co.*, 203 Fed. 976, 981 (C. C. A. 3rd, March 15, 1915, Bradford, D. J.);

Conroy v. *Penn. Elec. & Mfg. Co.*, 199 Fed. 427 (C. C. A. 3rd, October 11, 1912, Witmer, D. J.);

Computing Scale Co. v. *Toledo Computing Scale Co.*, 279 Fed. 648, 677 (C. C. A. 7th, October 4, 1921, Baker C. J.);

Wales v. *Waterbury*, 101 Fed. 126, 129 (C. C. A. 2nd, Feb. 28, 1900, Wallace, C. J.).

The Asserted Conflict: Here again the petitioner in its brief aims wide of the mark in its citations. In the two *Stromberg* cases cited in petitioner's brief, the patent in suit did not cover a unitary carburetor structure but only a particular improvement in a carburetor. The infringer paid royalties on another patented improvement which was incorporated in the infringing carburetor and which enhanced its salable value. The Court concluded that the royalties paid were an expense chargeable against the infringing business.

These *Stromberg* cases fall within the purview of Rule (d) stated in page 614 of *Westinghouse* v. *Wagner*, supra. That rule has its proper place in the law of patent accounting and no one has ever disputed it. But the Third Circuit Court of Appeals in the instant case has found that the twenty-six patents for apparatus to make plate glass contributed nothing to the profits derived from the sale of laminated glass and concludes that the instant case falls within Rule (b) of the *Westinghouse* Case, supra. To say that cases like the *Stromberg* cases, conflict with the decision of the Third Circuit Court of Appeals in the instant case is to say that this Court in the *Westinghouse* case, supra, enunciated conflicting rules. This of course is obviously ridiculous.

Again at page 31 of the petitioner's brief, the argument is made that if the *Westinghouse* Case is applicable to the instant case, then the *Westinghouse* Case is in conflict with

the decision in *Cincinnati Car Co.* v. *New York Rapid Transit Corp.*, 66 F. (2d) 592, 593, 594. Disregarding the impropriety of such an argument, let us examine the *Cincinnati* Case, supra, to determine what was involved.

The patent there involved was for a vestibule between cars in what is called an "articulated train", that is, the adjacent ends of each car on the train are carried by a single truck, thus avoiding the need of two trucks for each car. (35 F. (2d) 679). The question involved in the *Cincinnati* Case, supra, was whether on a finding of infringement of such a patent, the infringer was liable for (1) all the profits of the railroad; or (2) all the profits arising from the use of articulated cars. The holding is that there was no way of showing how much the infringing patent contributed to the profits of the railroad, and therefore the patentee was relegated to a recovery on the basis of a reasonable royalty.

Certainly, Judge Learned Hand did not intend or expect that an intelligent reading of his opinion in the *Cincinnati* Case would lead to the conclusion that he was in disagreement with this court, or that this court had laid down a rule of law that is of impracticable application.

As we read the *Cincinnati* opinion, Judge Hand merely points out the difficulties that are often attendant upon the application of the ruling relating to the burden of proof, using a nice figure of speech to emphasize the point, but recognizing, however, that such difficulties must and always are resolved by the proper forum. For example, Judge Hand resolves the difficulties in the *Cincinnati* Case. What was "left at large" in the *Westinghouse* Case (i. e., whether the entire salable value is attributable to the patent in suit) has been resolved in the instant case in favor of the patent in suit by the Third Circuit Court of Appeals. That Court and not this Court is where that difficult question must be resolved.

III.

Method of Stating the Account.

The Ruling: The Third Circuit Court of Appeals holds that "proper accounting procedure" requires that, where the infringement of a product claim is being accounted for, each sale constitutes a separate infringement; that the profit derived from each sale must be accounted for and turned over to the owner of the patent; and that if some sales resulted in losses, the infringer must bear the losses and may not offset the loss-incurring sales against the profitable sales (R. 1155).

This ruling of the Third Circuit Court of Appeals is fundamental in all patent accountings.

Crosby Valve Co. v. *Safety Valve Co.*, supra.
Callaghan v. *Myers*, supra.
McKee Glass Co. v. *Fry Glass Co.*, supra.
Permutit Co. v. *Refinite*, supra.

The above cited cases of this Court and of some Circuit Courts of Appeals which might be accumulated almost indefinitely, have been accepted as a guide for the various District Courts, one example of which is that cited by the Third Circuit Court of Appeals—*Electrical Engineers Equip. Co.* v. *Champion Switch Co.*, 49 F. (2d) 359 (D. C. W. D. N. Y. February 10, 1931, Hazel, D. J.) where it was held that losses incurred by the infringer from the sale of the infringing article below cost are not deductible from the profits found to be due the patentee.

The petitioner, at page 32 of his argument confuses the ruling of the Third Circuit Court of Appeals with the findings of fact as they were found by the Master and the District Court and accepted by the Third Circuit Court of Appeals.

Adopting the assumption of the Petitioner's argument that this Court will be interested in a discussion of these

facts, we find—the Master and the District Court found that the infringer in the instant case was engaged in a regular and continuous business during the period in which it made the infringing sales (R. 1105). The question therefore is whether that finding distinguishes the instant case from the rule of law announced in the cases cited above. The Third Circuit Court of Appeals said it did not.

We respectfully submit that the regularity and continuity of the business of the infringer in this case was in no degree different from the regularity and continuity of the business involved in the *Crosby* and *Callaghan* and other cases cited above.

The same practical problem that confronted the Master and the District Court in the instant case, confronted this Court and the other Courts in the cases cited above. No infringer usually engages in a business that is not regular and continuous, nor was there ever a cost accounting system which was able to ascertain "specific costs" in the sense of that term as used by the Master. It is elementary that every cost accounting system that was ever devised averages over all units, the labor, the material and the overhead elements of cost.

The determination of the average monthly cost per square foot of laminated glass and the offsetting of that monthly average cost against the selling price per square foot, for which it was sold, is the identical manner in which the defendant itself, in keeping its books, ascertained its profits and losses. (R. 137; R. Vol. IV. 11, R. 1025; 1026.)

The four reasons stated by the Master (R. 1026-1027) as to why in this particular instance average costs do not reflect specific costs, are present in every business.

The difference in the amount or quality of material used in fabricating each unit, does not differ any more substantially in the instant case than in most other cases.

The cutting losses or other losses in processing are seldom equal in any business.

We believe due credit was given for Edgework and if it was not, the failure to do so rests upon the petitioner in this case, on whom the burden of showing its cost rested.

All fabricated articles require a template, a pattern, a die or a drawing, each of which serves its purpose as well for a thousand as it does for ten.

Accordingly, the infringing business in the instant case does not differ in any of the elements of costs from other businesses which have been the subject of patent infringement accounts, and in which the Courts have held that the method directed to be followed by the Third Circuit Court of Appeals is the correct method.

The Third Circuit Court of Appeals says:

> "We do not find any substantial factors in the instant case on this issue which differentiate it from the cited cases". (R. 1156, 1157).

The Asserted conflict: We regret the necessity of again pointing out that the cases cited by the petitioner in two instances, do not hold that a "continuous" manufacture of an infringing product may, under some circumstances, be treated as a single continuous infringement, but on the contrary, in one of the cases cited the court expressly disapproved of such a method of stating the account.

In *Western Glass Co.* v. *Schmertz Wire Glass Co.*, 226 Fed. 730 at the cited page 732, there is set forth only a "statement of the case" in which no point relating to the continuity of the business is referred to and at the cited page 734 the discussion relates to the separation of non-infringing sales from infringing sales, when such separation is possible.

In *MacBeth Evans Glass Co.* v. *L. E. Smith Glass Co.*, 23 F. (2d) 459, the Third Circuit Court of Appeals does discuss the method of stating a patent account and there expressly disapproves a method which stated the account as if the infringer's conduct constituted one "continuous infringement". At page 462 of the opinion, the court,

after pointing out the well recognized distinction between an account for the infringement of a process patent and an account for the infringement of a product patent says:

> "The infringing accountant disclosed its infringement as one continuous operation. Whether this was the proper way to start and conduct an accounting was a matter with which this Court was then not concerned for it was accepted by everyone, *although it did venture an adverse comment on the method pursued*". (Italics ours).

In the *MacBeth Evans* Case the accounting infringer attempted to charge into his costs, the cost of making unsold lenses, thus reducing the profit on the sold lenses. The Third Circuit Court of Appeals refused to permit such a charge.

As to the opinion of the District Court in *MacBeth Evans* v. *L. E. Smith Class Co.*, 21 F. (2d) 553, 555, it rested on a misconception of the holding of this Court in the *Crosby* Case, supra, and the holding of the Third Circuit Court of Appeals in *Continuous Glass Press Co.* v. *Schmertz Wire Glass Co.* supra. The Third Circuit Court of Appeals calls attention to the District Court's misconception of these decisions at page 461 of 23 F. (2d).

It is respectfully submitted that the cases cited by petitioner show no conflict either with the decisions of this Court or with the decisions of any other Circuit Courts of Appeal.

IV.

General Damages.

The Ruling: The Third Circuit Court of Appeals has ruled that a patent owner in an infringement suit is not charged with the burden of proving that his damage "is *not* susceptible of calculation and determination with reasonable certainty" (R., 1163).

It is respectfully submitted that to impose such a burden on the plaintiff in a patent infringement account would defeat the whole purpose of the Patent Laws. How could any plaintiff ever hope to prove such a negative?

We submit, further, it is unfair to garble the words of Section 4921 of the Revised Statutes of the United States in the way petitioner has done it at page 37 of its argument. By the omission of whole phrases and by an abuse of the asterisk, thereby crediting subjects to verbs that are not their subjects at all, the petitioner has completely distorted the intent of the Act of Congress, nor should such a method of distorting the intended meaning of Section 4921 be excused because the entire section is set forth in an appendix.

The purpose of the amendment to Section 4921 of the Revised Statutes, inserted in 1922, was solely to enact into the statute the discretionary power in the court to accept opinion or expert testimony on the question of the patent owner's damage and to declare such testimony competent. This right had been declared by this Court long before 1922.

> *Dowagiac Mfg. Co.* v. *Minnesota,* 235 U. S. 641 (January 11, 1915, Justice Van Deventer).

It had also been declared by the Third Circuit Court of Appeals and other Circuit Courts of Appeals long before 1922.

> *Bemis Car Co.* v. *J. G. Brill,* 200 F. 749, 761 (C. C. A. 3rd, November 7, 1912, Buffington, C. J.);
>
> *U. S. Frumentum Co.* v. *Lauhoff,* 216 F. 610, 617 (C. C. A. 6th, June 30, 1914, Denison, C. J.).

The petitioner also argues that because it was not permitted to examine Respondent's books, it was deprived of the right to show that the respondent had suffered only "small" damage and that if it had been accorded that right and if it could have shown, in the exercise of that right,

that respondent lost a profit of only One Dollar on a single sale, the respondent should have been relegated to the recovery of only that amount, that is, to the recovery of only such "small" damage as it, the petitioner, might see fit to prove.

We submit the argument carries its own refutation. Particularly is this so, in the instant case, when we consider that the Master has found the facts to be that respondent had an investment in its laminated glass business of more than $2,800,000 (R., 1047) which was destroyed because of the petitioner's cut-price policy, which substantially drove the respondent out of the laminated glass business (R., 1042).

Certainly the argument of petitioner is not supported by the authoritative decisions of this court as enunciated in the cases cited above, nor in the decisions of the Circuit Courts of Appeals cited above.

The Asserted Conflict: If *Wallace & Tiernan* v. *Syracuse*, 49 F. (2d) 693 (C. C. A. 2nd, L. Hand) at the cited pages 694, 695, does stand for the proposition that it is a statutory condition precedent to an award of general damages (reasonable royalty) that the plaintiff must show that his actual damages "be not susceptible of calculation and determination with reasonable certainty", then as the Third Circuit Court of Appeals has said (R., 1163), that decision must either be confined to the special facts present in the *Wallace & Tiernan* Case, or else it is in conflict not only with the decisions of this Court but the decision of the same Judge in *Cincinnati Car Co.* v. *New York Rapid Transit Corp.*, 66 F. (2d) 592 (C. C. A. 2nd, L. Hand).

By no intelligent reading of the other authorities cited on page 38 of petitioner's argument can any of them be said to rule that "it is a statutory condition precedent to an award of general damages (reasonable royalty) that actual damages be not susceptible of calculation and determination with reasonable certainty".

Overman Cushion Tire Co. v. *Goodyear Tire & Rubber Co.*, 66 F. (2d) 361 (C. C. A. 2nd, July 17, 1933, Manton, C. J.), must have been cited for the reason that the Circuit Judge cites *Wallace & Tiernan Co.* v. *Syracuse, supra,* as being a holding that the award in the *Wallace & Tiernan* Case was for a reasonable royalty "because the exact amount of damages could not be proved."

Alliance Securities Co. v. *De Vilbliss Mfg. Co.*, 76 F. (2d) 503 (C. C. A. 6th, April 12, 1935, Moorman, C. J.) at the cited page 505 holds that since the patent owner was in no position to prove lost sales as the measure of damages for infringement "the case is one for the application of the reasonable royalty rule", citing the *Dowagiac* Case, supra.

The rest of the discussion at the cited page 505 relates solely to the question as to whether seven licenses granted over a period of five years under the patents in suit constituted some evidence as to the reasonable royalty value which could be attributed to the patent in suit.

Enterprise Ry. Equipment Co. v. *Wine Ry. Appliance Co.*, 77 F. (2d) 159 (C. C. A. 6th May 14, 1935, Moorman, C. J.), at the cited page 161, simply holds that since in that case the profits derived by the infringer from its infringement had been determined, there was no necessity to go into the question of whether a royalty should be awarded.

It is incomprehensible how any one can spell out of the citations of Petitioner a holding that it is a condition precedent to an award of general damages (reasonable royalty) that actual damages be not susceptible of calculation and determination with reasonable certainty.

V.

Interest.

The Ruling: The Third Circuit Court of Appeals on this point ruled that "since the case is one in equity, the matter of interest is one within the court's discretion".

We respectfully submit that the ruling of the Third Circuit Court of Appeals is fundamental in the Federal Courts.

Bates v. *Dresser,* 251 U. S. 524, 531 (March 1, 1920, Mr. Justice Holmes).

Miller v. *Robertson,* 266 U. S. 243, 256, 257, 258 (November 17, 1924, Justice Butler).

These two cases were not patent cases but a patent case is only a tort and the rule of law does not differentiate a patent case from that upon any other tort.

In *Miller* v. *Robertson,* above, this Court held—"When necessary in order to arrive at fair compensation, the Court in the exercise of a sound discretion may include interest or its equivalent as an element of damages", and thereupon imposed interest from a date prior to the liquidation of the damages.

Starr Piano Co. v. *Auto Pneumatic Action Co.,* 12 F. (2d) 586, 587 (C. C. A. 7th March 10, 1926, Page, C. J.).

Merrell Soule Co. v. *Powdered Milk Co.,* 7 F. (2d) 297, 300.

Since interest is in the discretion of the court, that discretion must be left to the court which having knowledge of the facts is in possession of something on which to base its judgment and exercise the discretion. That court is the District Court.

The Third Circuit Court of Appeals in this case after a review of the record has found "nothing in the record on which to base a ruling that the District Court abused its discretion". (R. 1166).

CONCLUSION.

It is respectfully submitted that the petitioner has been unable to point to any conflict either with the decisions of this Court or between the various Circuit Courts of Appeals and therefore the respondent prays that the Petition be denied.

Dated March 11, 1936.

Respectfully submitted,

AMBROSE L. O'SHEA,
WILLIAM B. GREELEY,
DRURY W. COOPER,
Counsel for Respondent.

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IN THE

Supreme Court of the United States

OCTOBER TERM, 1935.

Nos. 767 and 768.

DUPLATE CORPORATION AND PITTSBURGH PLATE GLASS COMPANY,

Petitioners,

v.

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA,

Respondent.

BRIEF FOR RESPONDENT.

ON WRITS OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE THIRD CIRCUIT.

AMBROSE L. O'SHEA
WILLIAM B. GREELEY
DRURY W. COOPER
Counsel for Respondent.

150 Broadway,
New York, N. Y.

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IN THE

SUPREME COURT OF THE UNITED STATES,

OCTOBER TERM 1935, NOS. 767 AND 768.

DUPLATE CORPORATION and PITTSBURGH PLATE GLASS COMPANY,

Petitioners,

v.

TRIPLEX SAFETY GLASS COMPANY OF NORTH AMERICA,

Respondent.

BRIEF FOR RESPONDENT.

On Writs of Certiorari to the United States Circuit Court of Appeals for the Third Circuit.

Statement.

This case comes to this Court on Writs of Certiorari issued to the Third Circuit Court of Appeals and relates to a patent infringement account, and more particularly, to certain so-called rules of law that the Court of Appeals has laid down to guide the District Court in the restatement of the account which it has ordered (81 F. (2d) 352; R. 911).

Adopting the suggestion in Petitioners' Brief, we will, in order to avoid confusion, refer to the Respondent as plaintiff and to the Petitioner as defendant.

The opinions of the District Court and of the Court of Appeals on the trial and the appeal of the patent in suit No. 1,182,739 are reported in 42 F. (2d) at pages 737 and 739 respectively. The opinion of the Court of Appeals with respect to the accounting (R. 911-922) is reported in 81 F. (2d) 352 and the opinion of the District Court on the issues of the accounting (R. 871-878) is reported in 10 F. Supp. 420.

Recognizing, as we do, that this Court, in most instances at least, confines itself to a consideration of rules of law, nevertheless, we must also recognize that there can be no such thing as a naked rule of law applicable to the infinite variety of fact situations arising in different cases of patent accountings.

> *Armstrong* v. *Belding Bros. & Co.*, 297 Fed. 728, 732 (C. C. A. 2nd, Feb. 4, 1924, Hough C. J., Certiorari denied 265 U. S. 585);
> *Levin Bros.* v. *Davis Mfg. Co.*, 72 F. (2d) 163, 165 (C. C. A. 8th, July 5, 1934, Stone, C. J.).

We deem it necessary at the outset, therefore, to set forth the findings of fact peculiar to this case on which the Court of Appeals has predicated its conclusions of law applicable to this case.

These findings of fact are:

1. The claim of the patent in suit is for an article of manufacture never, before its issuance, known to the glass, automobile or any other industry. It is a pioneer patent and partakes of the humane (42 F. (2d) 737 and 739). It is not a claim for a process of manufacture. The distinction is important.

2. The defendant had knowledge of the patent in suit when it began its infringement (R. 827).

3. The defendant was advised by three patent counsel of its own selection that if it dried its gelatine so as to leave it substantially free from moisture, it would infringe (R. 828).

4. Defendant disregarded the advice of its patent counsel by using heat (an air drier) to dry the gelatine after it was placed on the glass (42 F. (2d) 737, R. 794).

5. The plaintiff had invested in its laminated glass business $2,800,000 (R. 830), which has been destroyed by defendant's infringement (R. 826).

6. The purchasing public knew nothing about laminated glass in 1926 when the plaintiff started its business (R. 822).

7. Through the efforts of the plaintiff, by an advertising expenditure of $250,000 on its own part and an expenditure of $15,000,000 on the part of Ford Motor Company (R. 825) the manufacturers of motor cars and the purchasing public were, in the beginning of 1928, when the defendant began its infringement, made conscious of the advantages of laminated glass (R. 825-826).

8. Plaintiff had succeeded in getting Yellow Taxicab, Lincoln Motors Co. and Ford Motors Co. to adopt laminafed glass as standard equipment and the Cadillac, Chrysler, Buick and Hudson Companies to adopt laminated glass as optional equipment (R. 825).

9. Plaintiff, at the time the infringement began, had established a market for laminated glass (R. 830).

10. When the defendant entered the field, it established prices considerably lower than those of plaintiff, which naturally led considerable business to leave plaintiff and go to the defendant and also caused a reduction in plaintiff's selling prices (R. 826) and induced plaintiff's customers to breach their

contracts and refuse to pay the contracted price (R. 819).

11. The price policy of the defendant substantially drove the plaintiff out of business (R. 826).

12. The Pittsburgh Plate Glass Company is the infringer, having accomplished its infringement through its *alter ego,* Duplate Corporation (R. 797, 835).

It is true that in spite of these findings of fact, the District Court and the Court of Appeals have concluded that Pittsburgh Plate Glass Company did not deliberately infringe, being led to that conclusion by the additional finding that counsel for Pittsburgh Plate Glass Company, after examining plaintiff's patent and *"plaintiff's process"* advised Pittsburgh Plate Glass Company that it did not infringe.

Just how this conclusion flows from the above recited facts we are unable to follow. The Master's finding on this question of deliberateness is more accurate than the Court of Appeals' statement. It is that counsel for defendant advised that if the defendant "dehydrated (dried) its gelatine by means of a dehydrating agent (a drier) so as to leave it substantially free from moisture, it would infringe (R. 828). That advice defendant disregarded.

However, it is eminently clear that in arriving at its other conclusions, more particularly discussed hereinafter, the Court of Appeals undoubtedly did not and could not disregard the foregoing findings of fact.

Moreover, while it is true that the application by the Court of Appeals of the so-called rules of law to this case, results in a substantial recovery for the plaintiff, nevertheless, when considering this aspect of the case, it should be borne in mind that this defendant did a very large infringing business, having sold approximately four million square feet of infringing glass (R. 844A and B) and that the glass business is one in which large profits are made. This

is apparent when we consider that defendant had a cost for ordinary plate glass of approximately fifteen and a half cents (15½¢) per square foot and sold its ordinary plate glass at thirty-five (35¢) to forty-one and a half cents (41½¢) per square foot (R. 844A and B). Finally it should not be forgotten, in our consideration of this aspect of the case, that this plaintiff has suffered a substantial damage by defendant's infringement and the manner in which that infringement was conducted. The plaintiff's investment of $2,800,000 has been destroyed.

Objections to Defendant's Specification of Errors.

Specification of Errors 6, 7 and 8 are objected to on the ground that they broaden the errors specified in the Petition for the Writs, which is contrary to the Rules and Practice of this Court.

We therefore respectfully pray that defendant be not heard on these specifications of error.

Argument.

We now pass to a consideration of the application by the Court of Appeals of the so-called rules of law to the facts of this case.

I.

Computation of Defendant's Profits.

1.

The Cost of Manufacturing Defective Product.

The terms "wastage" and "factory operating losses", as used in defendant's brief, are misleading unless accurately defined. Those terms must be read as being synonymous with "defective product", because, whenever

throughout this litigation the terms "wastage", "factory operating losses", "rejects" and "returns" were used, either by the parties, the Master, the District Court, or the Court of Appeals, they were intended to mean defective product, which was either "rejected" in defendant's factory or "returned" by the customer (R. 806, 809, 874, 915).

All other "wastage" and "factory operating losses" which the defendant was able to prove were conceded by plaintiff as an item of expense in the account.

The fact is that Pittsburgh Plate Glass Company exhibited an inordinate haste to rush into the laminated glass business. The reason for this haste is apparent. Until the latter part of 1927, Pittsburgh Plate Glass Company resisted the introduction of laminated glass (R. 123). On October 17, 1927, after a year and a half of expense and effort, the plaintiff made a contract with Ford Motor Company, whereby the latter company adopted laminated glass as standard equipment on its new Model-A Car (R. 1011). No one can doubt that when that fact became known, it aroused the automobile industry (R. 826). In less than three months thereafter, on January 1, 1928, Pittsburgh Plate Glass Company, which had theretofore supplied practically every automobile manufacturer with non-infringing shatterable glass, thereupon rushed, helter-skelter, into the non-shatterable laminated glass business (R. 254-275; 295; 312; 337, 345).

The inevitable result of this rush to get the business in non-shatterable laminated glass was that the loss (from defective glass) was so great and the accumulation of defective laminated glass became so great that it almost crowded defendant out of the building in which they were operating (R. 273, 340).

The three page statement of the manner of calculating the total cost of making this defective product, set forth on pages 15-18 of defendant's brief is confusing.

It is confusing because on it is predicated the argument that included in the amount of $1,477,364.84 there *must*

have been some breakage and cutting loss as distinguished from completely finished defective product, although it is true the defendant concludes its argument by the statement, at page 20 of its Brief, that so far as it is concerned it makes no difference whether the whole or only a part of this item is made up of completely fabricated units or some other kind of loss occurring in the factory.

Neither the statement nor the argument, however, attempt to segregate the cost value of the breakage and cutting losses from the cost value of the completely fabricated rejects. There is not a scintilla of evidence in the record by which this segregation may be made, except in so far as it has been conceded by plaintiff. There is an abundance of evidence in the record, however, that included in this item aggregating $1,477,364.84 was the cost of making a tremendous quantity of defective laminated glass. (R. 272, 273, 274, 345, 346, 348).

Even defendant's brief, at page 25, admits that the testimony shows that quantities of fabricated laminated glass were rejected in the factory. Moreover, there are repeated findings by the Master, the District Court and the Court of Appeals that a tremendous quantity of defective laminated glass was included in this item. The Master finds that "Many rejections of *finished* Duplate (laminated glass) resulted from the operation of this (Pressing) Department" (R. 806); he finds "a considerable amount of the infringing product had to be rejected or 'scrapped' in order that a certain volume of salable specimens might be produced" (R. 829). As we read this finding the Master is talking about finished product.

The District Court explains its use of the term "Factory Operating Losses" by the words in parenthesis, to-wit, "(Rejects and Returns)" meaning as we read it that a "reject" is the same as a "return" and even the defendant admits that a "return" is a completely fabricated unit. And if that is not enough to show what precise point the District Court was considering, the opening sentence completely

clarifies the point. The District Court says (R. 874): "The Master has found that a considerable amount of laminated glass had to be *turned out* only to be rejected or returned". Surely, this language refers to completely fabricated laminated glass. Finally, the Court of Appeals also in its consideration of this point as to whether this item may be inincluded in defendant's cost, is speaking of completely fabricated units. It says (R. 915): "The accounting infringer may not offset against the profit which it made on the sale of infringing product the loss which it sustained in the manufacture of such of the *product*, as had not been sold, because defective, or, if sold, had been returned for the same reason."

Throughout this long litigation, then (eight years), every one connected with it has treated this item as representing completely fabricated, but, defective laminated glass from which the question of law arises as to whether a loss of that character may be allowed the infringer as an element of cost. The defendant has never done more than to attempt to prove that included in this item there "might" or "must" have been some losses other than those arising from the cost of making complete units. Even if we concede that to be so, then the contention of the plaintiff is, as it was before the Master and the lower courts, that it was the duty of the defendant to have so kept its records as to show how much of this item constituted a proper allowance in this patent account. Since it failed to do so, then the so-called "confusion rule" is applicable and the defendant may not have any part of this item as an allowance.

> *Westinghouse* v. *Wagner*, 225 U. S. 604, 620 (June 7, 1912, Justice Lamar).

To say, as defendant does, that the position as argued by the plaintiff now is different from the position taken by the plaintiff before the Master is entirely unwarranted. Plaintiff's Exceptions to the Master's Report, Twenty-first

to Thirtieth (R. 852-853) and Plaintiff's Assignments of Errors 22 to 29 were directed to this point (R. 901-903).

Since, therefore, it is clear that Pittsburgh Plate Glass Company completely fabricated a vast amount of defective laminated glass, accordingly, in this brief, we shall use the term "defective product" in referring to this item because the term "defective product" more closely defines the product that is the subject of the ruling of the Court of Appeals.

THE RULING: The first point raised by the defendant on this appeal is that the Court of Appeals erred in failing to allow the defendant to include in its cost of manufacturing, the cost of manufacturing such of its product as had not been sold because it was defective, or if it had been delivered to a customer, was returned for the same reason (R. 915).

That precise point was decided by this Court in *Crosby Steam Gage & Valve Co.* v. *Consolidated Safety Valve Co.*, 141 U. S. 441, 454 (November 2, 1891, Justice Blatchford). There the Supreme Court, after a review of its own decisions, and the decisions of other Federal Appellate Courts, holds that a claim for the allowance of the cost of making defective product is not permissible in a patent infringement account, saying that the only subject of inquiry is the profit made by the infringer on the articles it sold at a profit and for which it received payment, and that such losses incurred by the infringer through its wrongful invasion of the patent are not chargeable against the owner of the patent nor can their amount be deducted from the compensation which the owner of the patent is entitled to receive.

The attempt on the part of defendant to limit the scope of the *Crosby* holding to the cost of making experiments is in disregard of the plain and unmistakable language of the Court. It is undeniable that the Court was considering a number of valves which were defective, some of which were

discovered to be such before they were sold and thereupon destroyed, and others of which, having been sold to customers, were returned and new valves given to replace them, and the returned valves destroyed.

At page 454 this Court states the facts involved in the *Crosby* case:

> "The defendant contends that the master and the Circuit Court erred in disallowing as a credit to the defendant in diminution of the profits reported, the sum of $1,978.34, it being contended that that was an expense suffered by the defendant in modifying and reconstructing certain valves to render them more perfect and more salable. These were valves made by the defendant and destroyed by it before sale, or after a sale and an exchange for other valves: which destroyed valves did not appear in the account on either side, thus becoming unsold valves."

At page 457 the Court states the applicable rule of law to such a state of facts:

> "Without going into details, it is sufficient to say that we concur in the conclusion that the defendant was not charged for valves which were subsequently destroyed, or, if so, it was not charged upon the new valves which replaced the destroyed valves.
>
> "As for the contention that the destroyed valves ought to form a credit against the profits actually realized by the defendant on other valves, it is sufficient to say that the only subject of inquiry is the profit made by the defendant on the articles which it sold at a profit, and for which it received payment, and that losses incurred by the defendant through its wrongful invasion of the patent are not chargeable to the plaintiff, nor can their amount be deducted from the compensation which the plaintiff is entitled to receive. The Cawood Patent, 94 U. S. 695; Elizabeth *v.* Pavement Co., 97 U. S. 126, 138; Tilghman *v.* Proctor, 125 U. S. 136."

Moreover, the defendant's argument that defective product constitutes manufacturing wastage in the sense of

that term as used in the decisions of the Supreme Court, an example of which is *Manufacturing Co.* v. *Cowing*, 105 U. S. 253, (1881, Mr. Justice Waite) is also untenable because that identical argument was made by the defendants in the *Crosby* case at page 455 of the report (141 U. S.) and this Court rejected it.

In this connection too, it is significant that *Manufacturing Co.* v. *Cowing* was decided in 1881 and the *Crosby* case was decided in 1891, and that five of the Justices who rendered the decision in the *Cowing* case also concurred in the decision in the *Crosby* case. It is not possible, therefore, that those cases conflict.

The principle of the *Crosby* case is also enunciated in *Callaghan* v. *Myers*, 128 U. S. 617 (December 17, 1888, Mr. Justice Blatchford). In that case the defendant was not permitted to charge the cost of producing copies of the infringing book on hand at the end of the accounting period.

The defendant attempts to distinguish the *Callaghan* case by the fact that the unsold books were still on hand at the end of the accounting period, whereas in the instant case the defective laminated glass was destroyed before the end of the accounting period. We submit that this distinction is not well founded.

As a second ground of distinction, defendant argues that in the instant case the production of the defective product went on in the factory concurrently with the production of the good infringing product. We submit that the goods on hand in the *Callaghan* case also went on, that is, were printed in the factory concurrently with and as a necessary part of the production of the infringing books which were sold. To say otherwise is to disregard the common knowledge as to the manner in which the publishing business is conducted.

Ever since the Supreme Court made its pronouncement in the *Crosby* case, that case has been considered as enunciating the principle of law to be followed in subsequent

accounting cases. The Court of Appeals in the instant case has followed the holding of that decision.

So far as counsel have been able to find after diligent search, no United States Circuit Court of Appeals has departed from the decision in the *Crosby* case. On the contrary, both the United States Circuit Courts of Appeals and the District Courts have consistently followed the principle enunciated in the *Crosby* and *Callaghan* cases.

In *McKee Glass Co.* v. *H. C. Fry Glass Co.*, 248 Fed. 125 (C. C. A. 3rd Jan. 29, 1918, Woolley, C. J.) at page 128, it is held that the infringer's contention that the plaintiff was entitled only to net profits after deducting the losses on some sales from the profits on others, was not tenable for the reason that losses incurred by an infringer through its wrongful invasion of plaintiff's patent are not chargeable to the plaintiff, citing the *Crosby* case.

It is not accurate to say as defendant does in a foot-note at page 32 of its brief, that the Court in the *McKee* case based its holding on wilfulness or increased the actual profits because the defendant had violated an injunction. Those elements were not a factor in that case and the Court says so. The Court, at page 127 of the report says it is "not called upon to consider or decide any question of punitive or remedial penalties in contempt proceedings, because the record makes it very clear that the award in this case was within the principle contended for by the defendants, in that, it shows no attempt on the part of the Court to impose a punitive penalty, but shows, on the contrary, that the Court was careful to restrict its award to compensation for injuries actually sustained." Moreover, it is clear from the decision that the character of the business was as is usual, viz., a continuously conducted business.

In *Permutit* v. *Refinite Co.*, 27 F. (2d) 695 (C. C. A. 2nd, July 9, 1928, L. Hand, C. J.) at page 698 the holding is that a plaintiff has the right of taking into account only profitable sales and ignoring the unprofitable sales.

In *Oil Well Improvements Co.* v. *Acme Foundry & Machine Co.*, 31 F. (2d) 898 (C. C. A. 8th, March 19, 1929,

Stone, C. J.) at page 900 the holding is that the manufacturing cost of infringing devices on hand at the end of the infringing period, less their junk value, cannot be deducted from profits on devices sold by the infringer.

DEFENDANT'S CITATIONS: The defendant, somewhat recklessly, as we think, cites certain cases as standing for a view, contrary to the *Crosby* and the other cases cited above. We have carefully considered those cases and confidently assert that none of them enunciate propositions of law that are in conflict with the *Crosby* and other cases cited, supra; and we also confidently assert that no case of any Circuit Court of Appeals of the United States can be found which is in conflict with the decision of the *Crosby* case or in conflict with the holding of the Court of Appeals in the instant case.

Defendant's citation of *Manufacturing Co.* v. *Cowing,* supra, begs the question. No one has ever questioned that there are certain manufacturing wastages that are allowable. The question here is whether defective product is wastage of the kind that is allowable. Five of the Justices of this Court, concurring in *Manufacturing Co.* v. *Cowing,* have said that it is not. See *Crosby* case, supra.

As we read *Permutit Co.* v. *Refinite,* 27 F. (2d) 695, 697 (supplemented by our knowledge of the record), the guaranty referred to was a guaranty to maintain a filter apparatus by the seller and such guaranty applied to all contracts of sale. It was not possible to determine how much maintenance expense was attributable to each filter, so the court averaged all the maintenance expense over all filter contracts and allowed this averaged expense against each profitable account. The court refused to allow the loss on unprofitable contracts to be deducted from the profits on profitable contracts (page 698). The case therefore is not in conflict with the decision of the Circuit Court of Appeals in the instant case, but is in accord with it.

Stromberg Motor Devices Co. v. *Zenith Detroit Corp.,* 73 F. (2d) 62, seems to be cited by the defendant because of the holding at pages 64-65 of the decision, that interest on

investment and federal taxes are proper allowances in a patent infringement account.

Levin Bros. v. *Davis,* 72 F. (2d) 163 is seemingly cited because of a discussion, at pages 165, 166 of the term "profit" as that term is affected by overhead.

Wallace & Tiernan Co. v. *Syracuse,* 45 F. (2d) 693 is seemingly cited because in the context at page 695, where the Court is discussing the profits lost by the patent owner (not the infringer's profits), the expression is used that in arriving at the patent owner's profits, "there must, however, be deducted all his expenses". Just what that has to do with the instant case we are unable to see.

Stromberg Motor Devices Co. v. *Detroit Trust Co.,* 44 F. (2d) 958, is cited because of the holding at page 963 that royalties paid to third parties for the use of a patent which the infringer incorporated in the infringing structure are properly allowable; and because of the general statement appearing on page 964 that when recovery of profits is sought, the one seeking them takes whatever chance there is in reduction in the profits by the usual and proper expenses and allowances.

Oil Well Improvements Co. v. *Acme Foundry & Machine Co.,* 31 F. (2d) 898, is cited because at page 900 a bad debt, incurred in the sale of some infringements was allowed. Obviously, the holding is that since the purchase price for some of the infringements was never collected, neither the selling price, nor the cost of those infringements should appear in the account. The case is pertinent to the instant case only in that while the court allowed this bad debt, nevertheless, it disallowed the manufacturing cost of the infringements which were on hand at the end of the infringing period, citing with approval, the *Crosby* case, supra. The case is therefore authority for the distinction between such items as bad debts and such items as manufacturing costs of defective product and unsold inventory.

L. P. Larson Jr. Co. v. *Wm. Wrigley Co.,* 20 F. (2d) 830 is seemingly cited because at page 832, in allowing a deduc-

tion for advertising the infringing article, a general statement with respect to profits is made. The case is perhaps further cited because, as the defendant says, a deduction for Federal taxes was allowed and a general statement as to the manner of arriving at profits was made in connection with that deduction.

In *Union Elec. Welding Co.* v. *Curry*, 279 Fed. 465, at the cited page 467, the discussion relates to the propriety of offsetting the losses made in one year against the profit made in a subsequent year. The case cites with approval the *Crosby* case, supra.

The Court allowed the loss in 1912 and refused to allow the loss in 1916.

Judge Denison, who is learned and experienced in patent accountings says, at page 467, that while the general rule is that losses in one period may not be deducted from profits in another, *Crosby Valve Co.* v. *Consolidated*, supra, *Canda Bros.* v. *Michigan*, 152 Fed. 178 (C. C. A. 6th) and says further that the applicability of the rule must depend on the facts of the case. Just what all the facts were in the *Union Welding* case does not fully appear in the decision, but in the meager description of those facts as given in the opinion (at pages 467, 468) it is clear that no similar or even analogous facts are present in the instant case. In the instant case there is no proven loss in one period of infringement nor a proven gain in another period. It is idle to argue that the rejects in the instant case, which were never sold, helped the infringer to make profits from the infringements that were sold and remained sold, because it is manifestly evident that the exact opposite is the case here. The infringer, the defendant here, has always argued and still argues that because of the cost of making defects, it was unable to make a profit on the infringements that it sold. We can see no pertinency in the decision of Judge Denison to the question whether an infringer may charge the cost of making defective product against the profit made from the sale of good product.

Now with respect to these cases cited by the defendant as being in conflict with the decisions of the *Crosby* and *Callaghan* cases, it is apparent that the general statements contained in the decisions cited by the defendant get us nowhere in our consideration of the point involved in the instant case. They are not helpful to a conclusion as to whether the cost of manufacturing defective units is a proper allowance in the instant case.

Neither does the single sentence, culled from the opinion of Chief Justice Hughes in *Leman* v. *Kreutler-Arnold Co.*, 284 U. S. 448,456 and quoted in a foot-note on page 10 of defendant's brief, help us. The instant case does not involve punishment for contempt which is the point in connection with which Mr. Justice Hughes used the quoted sentence. Indeed in the instant case, the effect of the Court of Appeals' decision does not result in punishment but simply awards compensation to the injured plaintiff.

The courts using those general statements certainly did not intend that they were to apply to every allowance that confronts the court and as we have shown above, in one or two instances, this is made clear in the decisions themselves.

Defendant's argument that the same principle is involved in the *Crosby* case as is involved in the cases in the Courts of Appeals which allowed such items as interest on investment, federal taxes, etc., is wholly untenable because the argument leads to the conclusion that these Courts of Appeals' decisions overrule the decisions of this Court.

In any event, the cases cited by the defendant do not involve the question of an allowance for the manufacturing cost of defective product and defendant admits that to be the fact in the note at the bottom of page 27 of its brief.

It ought not to be necessary to digest the cases in the Third Circuit Court of Appeals, viz., *Continuous Glass Press Co.* v. *Schmertz Wire Glass Co.*, 219 Fed. 199, and *MacBeth Evans Glass Co.* v. *L. E. Smith Glass Co.*, 23 F. (2d) 459, because both those cases were specifically called

to the attention of the Court of Appeals and they were clearly not overlooked. It is to be presumed that the Court of Appeals in deciding the instant case, knew the scope and extent of its decisions in the *Continuous Glass* case and the *MacBeth Evans* case.

It is important to note, however, that in the *MacBeth Evans* case, supra, the question did arise as to whether an infringer could charge into his account as a part of his cost, the cost of making some lenses that were unsold. The Court refused to allow such a charge after explaining its decision in the *Continuous Glass* case, citing with approval *Callaghan* v. *Myers*, and the *Crosby* case, supra.

The discussion in the decision of the District Court in *MacBeth-Evans Glass Co.* v. *L. E. Smith Glass Co.*, 21 F. (2d) 553, 559 (D. C. W. Dist. Penn. March 8, 1927, Thomson, D. J.) relating to the continuity of a business and the conclusion there arrived at is based on a misconception of the decision in the *Crosby* case.

We therefore respectfully submit that the rule of the *Crosby* case must be applied to the facts in the instant case, and we further submit that the citations in the defendant's argument do not disclose any conflict between the decision of the Court of Appeals in the instant case and the decisions of this Court in the *Crosby* and *Callaghan* cases, nor any conflict with the decisions of any other Circuit Court of Appeals.

2.

Whether thin plate glass may be charged in this account at cost or market value.

THE RULING: The second point raised by the defendant on this appeal relates to the conclusion of the Court of Appeals that in view of the fact situation peculiar to the instant case, Pittsburgh Plate Glass Company could charge only the actual manufacturing cost of the one-eighth inch plate glass that it incorporated in the infringing product, laminated glass.

Three separate forums and five individual judges have rendered five separate opinions (R. 833, 866, 797, 871, 911) on this point, all of which are in agreement, that this conclusion of the Court of Appeals is necessary and inevitable in view of the facts presented.

That factual situation on which the Court of Appeals based its conclusion in the instant case is:

1. That Pittsburgh Plate Glass Company with full knowledge of the patent accomplished its infringement through its creature, Duplate, which was formed for the express purpose of infringing this patent (R. 17-28, 797, 835);

2. That one-eighth inch glass was worthless to the automobile industry, hence there was no market and therefore no market value for the sale of one-eighth inch plate glass to the automobile industry (R. 836);

3. That laminated glass displaced the heavier grades of plate glass in automobile construction (R. 836);

4. That plaintiff by its own efforts and at substantial expense had, at the time the infringement began, established a market for laminated glass (R. 825, 830);

5. If Pittsburgh Plate Glass Company had not infringed the patent in suit, it would not only have failed to sell one-eighth inch plate glass to the automobile industry, except to plaintiff or its licensees, but would also have lost the sale of heavier plate glass which laminated glass displaced (R. 836);

6. That the plate glass manufactured by Pittsburgh Plate Glass Company for incorporation in the infringing device represented just so much that it would not otherwise have sold and returned a profit which it would not have made save for the infringement (R. 838);

7. The Pittsburgh Plate Glass Company not only fixed the prices at which it sold the plate glass to its *alter ego* Duplate Co., but marketed the infringing product and fixed the price for it. Duplate Corporation was a mere department of Pittsburgh Plate Glass Company in transacting the infringing business.

8. That Pittsburgh Plate Glass Company carried on a cut price policy in competition with plaintiff, the effect of which was to drive plaintiff out of the laminated glass business (R. 826);

9. That to permit Pittsburgh Plate Glass Company to charge in this account, the billing price for one-eighth inch plate glass to its *alter ego*, Duplate, would have the effect of allowing the infringer to retain all the profit it made on the sale of the infringing product, thereby defeating the very purpose of the patent laws (R. 838, 839);

10. That the market for one-eighth inch plate glass was created by Pittsburgh Plate Glass Company's infringement, since it would not have sold one foot of one-eighth inch plate glass to the automobile industry except for its infringement (R. 840).

Flowing logically from these findings is the conclusion that the infringer's preconceived plan in conducting its infringement was to charge a large profit for the raw material that it incorporated into the infringement, pocket that profit for itself and then sell the completed infringement at or below cost, when cost is figured as including the so-called market price of such raw material (R. 842).

On page 35 of defendant's brief it is said that the Master has found "(3) that the infringing article was not a new article of commerce in the sense that it would have been had there been no prior windshields or body lights in automobiles". Neither at the page of the record cited,

nor at any other page of the record is there is to be found such a finding by the Master. On the contrary, the findings of the Master, the District Court and the Court of Appeals are that the infringing article was a new article of manufacture, never before known to the glass, automobile, or any other industry (42 F. (2) 737, 739).

Moreover, the matter identified as "(4)" on page 35 of defendant's brief does not accurately state any finding of the Master as made at the page of the record cited, or at any other page of the record.

Neither did the Master predicate his conclusion that only the manufacturing cost could be charged in the instant account on the motive (good or bad) that the infringer exhibited. On the contrary, he concluded that the defendant here was actuated by a good motive, though just how that conclusion arises from the facts he found, we cannot understand.

Throughout defendant's argument, it treats Duplate Corporation and Pittsburgh Plate Glass Company as separate entities and complains, at page 39, that the Master treated them as a single entity. The Master could not have done otherwise. The Supplemental Interlocutory Decree (R. 28) determined that these two legal entities should be treated in this Equity Court as one.

Defendant repeatedly admitted in its arguments before the Master that each of these two entities were the *alter ego* of the other. Based on this judicial determination, from which the defendant took no appeal, as well as on the admissions of the defendant, the Master found that it has been *determined*, as well as *admitted*, that the Duplate Corporation was the *alter ego* of Pittsburgh Plate Glass Company severally and *vice versa* (R. 835).

The fact that DuPont Viscaloid Company was *particeps criminis* in the plan of setting up the Duplate screen, changes neither the fact nor the law, nor does it mitigate the injury accomplished thereby. Nor is there anything

anomalous in two legal entities utilizing a corporate screen for the purpose of hiding an ulterior purpose.

> *Chicago Milw. & St. Paul* v. *Minneapolis Civic Assn.*, 247 U. S. 490 (June 10, 1918, Justice Clarke).

Such of defendant's arguments, therefore, as are predicated on the treatment of these entities as separate should be disregarded.

We respectfully submit that to say that the result of the ruling of the Court of Appeals on this point gives to the plaintiff a "bonanza of large proportions" is unwarranted and unjustified. While it is true that the profits earned by Pittsburgh Plate Glass Company are "easily segregated", it is not accurate to say that those profits were earned by the sale of non-infringing and otherwise marketable plate glass, because it has been found by the Master, the District Court and the Court of Appeals, that the plate glass here in question was not marketable in the automobile industry and it has further been found that these "easily segregated profits" arose directly from defendant's infringement (R. 836, 839).

All arguments as to the error of this rule predicated on "ifs", "ands" and different factual situations, or as the defendant puts it "converse situations" are beside the question. All these conjectural arguments merely result in this—that if Pittsburgh Plate Glass Company had not infringed, it might have made more profits. That too, of course, gets us nowhere in our consideration of the instant case.

The defendant argues that in spite of the findings of fact present here, and in spite of the obvious injustice, that would result from its argument, if followed, this case must be governed by the rule of law stated in *Barber Asphalt Paving Co.* v. *Standard Asphalt & Rubber Co.*, 30 F. (2d) 281 (C. C. A. 7th, October 4, 1928, Evans, C. J.) at page 284, which rule reads—

> "(b) Where non-infringing commodities, which are marketable, that is, fit for market, are produced by the infringer, and subsequently used by him in making the infringing products, then market value (ordinarily selling or transfer value) rather than cost to the infringer is the proper basis for determining profits."

If defendant is sustained, and this ruling is applied to the instant case, then it must be applicable to all cases for it would be difficult to imagine a case where the rule would not apply, if it applies here.

The question then is—Does rule (b) of the *Barber* case constitute an inexorable rule that may not be disregarded by lower courts in any case involving patent accountings no matter what the facts? If the law is to be made that inflexible, then any infringer who is fortunate enough to have the facilities for manufacturing the raw materials that go into an infringement, may infringe a patent with impunity, for the way is clearly pointed out, in the defendant's conduct here, by which liability may be avoided. If the rule of the *Barber* case is applied to the instant case, then Pittsburgh Plate Glass Company will be permitted to retain for itself $2,465,600.41 profit (R. 844A & B) which it would not have made but for its infringement.

The Master, the District Court and the Court of Appeals have concluded that to apply the rule of the *Barber* case to the instant case does violence to their common sense and shocks their conscience (R. 840, 799 81, F. (2d) 358).

Was not equity jurisdiction established to prevent just such operations of a naked rule of law?

Obviously a conclusion of law predicated upon a particular factual situation cannot fairly be said to be in conflict with another conclusion of law predicated upon an entirely different factual situation.

It is a truism that there are few, if any, absolutes in the law. "It is idle, therefore, to say that any hard and fast rule can be made applicable to all cases where profits

are to be accounted for. The court and the accounting officer will consider each case in the light of its own peculiar characteristics and deal with it practically and in a common sense manner."

The Master, the District Court and the Court of Appeals have, therefore, refused to apply the rule of the *Barber* case and applied the rules stated in the following cases:

Conroy v. *Penn. Electrical Mfg. Co.*, 199 Fed. 427, 429 (C. C. A. 3rd, October 11, 1912, Witmer, D. J.);

Union Elec. Welding Co. v. *Curry*, 279 Fed. 465, 467 (C. C. A. 6th Feb. 17, 1922, Denison, C. J.);

Armstrong v. *Belding Bros. & Co.*, 297 Fed. 728, 732 (C. C. A. 2nd Feb. 4, 1924, Hough, C. J.; certiorari denied 265 U. S. 585);

Levin Bros. v. *Davis Mfg. Co.*, 72 F. (2d) 163, 165 (C. C. A. 8th, July 5, 1934, Stone, C. J.).

The *Armstrong* Case, supra, involved a patent on a holder for skein silk. Defendant enclosed in the patented holder some skein silk, an article of commerce (having an old and established market value) manufactured by it. The court, rejecting infringer's contention, held that it was not entitled to charge in its account the market value of the skein silk sold in the infringing holder (R. 840) because of the peculiar facts there present, stating at page 732:

> "What created the demand so supplied was not the desirability of the old silk but that of the new holder, and the language quoted above from the *Vandenburgh* Case is wholly applicable; defendant would not have sold a pound of holder silk had it not availed itself of plaintiff's patent, therefore, it must pay the profit on all sales so made."

The history of the *Armstrong* Case in the District Court will be found in 280 Fed. 895. A consideration of the opinion in 280 Fed., affirmed by the opinion of Judge

Hough, 297 Fed. 728, makes it clear that the opinion in 178 Fed. 554 (cited in the *Barber* Case) is not the law of the *Armstrong* Case.

The only attempt defendant made to distinguish the *Armstrong* Case from the instant case is to point out at page 42 of its brief that in the *Armstrong* Case, "It was found as a fact that the defendant there could not have sold a pound of silk had it not infringed the plaintiff's patent."

But that finding surely does not constitute a "vast" distinction between the *Armstrong* Case and the instant case, because an identically similar fact has been found in the instant case, viz., that Pittsburgh Plate Glass Company could not have sold a foot of the one-eighth inch plate glass here in question had it not infringed the plaintiff's patent.

The *Union Welding* Case, supra, involved a patent for a tool for twisting ties. The infringer supplied the patented tool to persons who desired to tie bags by the use of the patented tool, making only a nominal charge for the tool but making its profit out of the sale of ties to such users. The ties were not patented, yet the Court of Appeals for the Sixth Circuit forced the infringer to account for and pay over the profit it made on the sale of the non-patented ties, saying at page 469:

> "The liability to account for profits from an article that does not, by itself alone, infringe, and under conditions analogous or parallel to those here, is sustained by Wales *v.* Waterbury (C. C. A. 2nd) 101 Fed. 126, Rumford *v.* N. Y. Co. (C. C.) 136 Fed. 873; Consolidated Co. *v.* Diamond Co. (C. C. A. 2nd) 232 Fed. 475".

DEFENDANTS' CITATIONS: In the *Barber* Case, the attempt was made to recover the profits "derived from the mining and refining of natural asphalts". Those natural asphalts were processed and had a known market value in the roofing industry. Some of them were included in the

patented prepared roofing. The court, in refusing the request of the patent owner to include the profits arising from the mining and refining of the natural asphalts, laid down the rule which is the subject of controversy here.

No contention is made by the plaintiff in the instant case that defendant here should account for the profits it made on the mining and refining of the sand, soda, ash and lime which goes into glass; nor did the one-eighth inch glass have any worth or market value to the automobile industry (R. 836). The *Barber* Case is, therefore, distinguishable on its facts.

In *Wallace & Tiernan Co.* v. *Syracuse,* supra, the Court was considering a patent that did not cover the whole infringing apparatus and said that in such a case "a reasonable manufacturing profit upon the unpatented part of the apparatus" should be allowed, but pointed out that in the *National Folding Box Case* vs. *Elsas,* 86 F. 917, the same court said "That an allowance of the ordinary profits of manufacture was proper only when the patent did not cover the whole infringing apparatus".

In the instant case, the patent of the plaintiff does cover the whole infringing product. There was no question involved in the *Wallace & Tiernan* Case, such as is involved in the instant case.

The discussion in *National Tube Co.* v. *Mark,* 10 F. (2d) 43 at the cited page recites facts which bear no relation whatever to the facts of the instant case.

In *Stromberg Motor Devices Co.* v. *Detroit Trust Co.,* 44 F. (2d) 958, at the cited pages 964, 965, we can find no discussion of any subject which is pertinent to the point here discussed. Indeed whatever discussion and whatever holding is made by the court at the cited pages leans rather toward the plaintiff's position on the point here considered.

Neither do we see any analogy between the point here discussed and the holding in *Diamond Drill & Machine Co.* v. *Kelley,* 131 F. 89; nor is the holding in *Westinghouse Elec. & Mfg. Co.* v. *Wagner Elec. Co.,* 225 U. S. 604, 615

pertinent, to defendant's argument, but it supports plaintiff's position, because it was held that where the patent involved a complete entire structure, the owner of the patent was entitled to all the profits that the infringer made from the sale of infringing structures.

We are unable to trace any connection between the discussion in *Dowagiac Mfg. Co.* v. *Minnesota Moline Plow Co.*, 235 U. S. 641 at the cited page 647, and the point involved here.

Fairbanks Morse & Co. v. *American Valve & Meter Co.*, 34 F. (2d) 867, 871 is another example of those cases which hold that where the patent does not cover the entire article, the profits from the sale of the entire article must be apportioned between that which was contributed by the patent and that which was contributed by something else. That is not the instant case where it has been found as a fact that the patent gave to the product in question its entire salable value.

The cases cited by the defendant which hold that an infringer is entitled to a share of the profits earned from the sale of the infringements, where it is shown that the infringer contributed something to those profits outside of the infringement, such as an improvement in the patented structure, are not applicable to the instant case.

The reasoning of all courts is that the infringer's contribution must be something outside of the patent that enhances the sales value of the patented product and thereby produces more profit, but no court has ever reasoned that where, as here, the infringer's alleged contribution has the effect of depressing the sale value of the patented product, the infringer is entitled to retain any part of the profits or is entitled to sympathy in the court's consideration of the amount of damages.

The contentions as here advanced by the plaintiff and as they were advanced to the Master, the District Court and the Court of Appeals were enunciated immediately after the Supplemental Decree in this case had been entered. The Supplemental Decree was filed December 5,

1931 and the contentions here advanced were first raised before the Master on February 9, 1932. It could hardly have been advanced before the entry of the Supplemental Decree. The Master has found that the question was timely raised by plaintiff (R. 798, 835). The Supplemental Decree raised the question. The District Court also held the question was timely raised (R. 866-869).

Accordingly, based on the facts as they have been found in the instant case, we submit, that the conclusions of the Master, the District Court and the Court of Appeals on the point here discussed were correct, and that those conclusions are not in conflict, but on the contrary are in harmony with the decisions of this Court and with the decisions of other Circuit Courts of Appeals.

2-(A).

The Court of Appeals' refusal to apportion the profits between the infringed patent and patents covering apparatus for making plate glass.

Defendant says that the point involved here is a subdivision of Point 2 dealing with the Court of Appeals' ruling that the infringer must account for the profits it made by its plan of attributing such profits to the market value of the glass used in the infringement. We respectfully deny that the point involved here is a sub-division of Point 2 or any other point involved in this case. It should stand by itself and be allowed or disallowed, according to the rules of law which are applicable to the facts here involved.

It is true, however, that the defendant would, as it were, like to have two bites of the cherry. It argues that if it can not have the profit it made from its infringement because of the so-called market value rule, then it should be allowed to keep those profits because of the applicability of the so-called apportionment rule.

THE RULING: The Court of Appeals has ruled that where the entire commercial value of a mechanism or

product arises from the patent, the owner of the patent is entitled to recover from the infringer the total profits derived from the manufacture, use or sale of the mechanism or product (R. 916).

The defendant asserts that this ruling is in conflict with the decisions of this Court and of other Circuits Courts of Appeals and is not applicable to the facts of this case.

The twenty-six patents owned by the defendant were in no way related to the product, laminated glass, nor plate glass, as such, nor to any operation in the manufacture of laminated glass. They covered details of apparatus which was used by Pittsburgh Plate Glass Company for the manufacture of plate glass, some of one size of which was used by it in the manufacture of laminated glass. The unpatented method of making plate glass by the use of this patented apparatus is referred to in the record as the "continuous process".

The defendant would have the court compare the up-to-date facilities for making plate glass with the less efficient facilities of the past and, since those better facilities enabled it to more effectively infringe the patent in suit, because it could manufacture one of the raw materials at a lesser cost, and also, of course, undersell the owner of the patent to such an extent as to drive it from the laminated glass business, to conclude that the savings (which is only another word for profits) thereby effected in accomplishing a part of the infringement should go to it. That is, Pittsburgh Plate Glass Company pockets the large profit accruing from its part of the infringement, its *alter ego,* Duplate, then fabricates the thin plate glass into the infringing product and delivers it back to its *alter ego,* Pittsburgh Plate Glass Company, the latter thereupon sells it far below plaintiff's prices and far below what Pittsburgh Plate Glass Company says is the cost. Surely an Equity Court can find some way to prevent such an injustice. Are not all rules of law, as administered in equity, designedly purposed to prevent just such injustices?

The defendant argues that this ruling of the Court of Appeals renders a patent accounting into a "proceeding to penalize one who has infringed, by stripping him of everything connected with the infringement and turning it over to the patentee".

The defendant seems to think that that statement is startling. It is generally supposed that that was the very purpose of the patent statutes and the very end sought by every court enforcing the patent statutes. To award the injured party that which the tortfeasor has gained by unjust enrichment cannot fairly be said to be imposing a penalty nor does it strip the infringer of anything that he should not be forced to give up.

The Courts have repeatedly held that an infringer will not be permitted to profit by the infringement. "Always the task (of courts) is to see that the patentee recover every dollar of advantage realized by the infringer from the infringement."

Levin Bros. v. *Davis Mfg. Co.*, supra.

This profit, which Pittsburgh Plate Glass Company would have left with it, is not "remotely connected" with its infringement, as defendant argues, but on the contrary is intimately connected therewith, for as the Master has found, Pittsburgh Plate Glass Company would not have made a dollar of this profit (savings) except for its infringement (R. 841). If this finding is accepted then it is clear that there is a confusion between this profit (saving) and the profits on laminated glass, and even if it be true that that saving was a "very large factor in enabling the defendant to sell laminated glass in competition" with non-infringing glass, yet it must not be forgotten that this same factor was the vital factor which enabled this defendant to undersell the plaintiff and thus drive the plaintiff from the laminated glass business. We do not agree that laminated glass was sold in competition with ordinary shatterable glass any more than it could be said that automobiles are sold in competition with horse-drawn vehicles.

The Court of Appeals predicated its ruling on this point on the fact that the sales value of the laminated glass was in no way enhanced by the fact that one of its component parts, thin plate glass, could be manufactured more cheaply by the use of the "continuous process" than without such process (R. 916).

It is certain, too, that the Court of Appeals, in arriving at its ruling, also had in mind its opinion on the prior appeal (42 F. (2d) 739) in which it found that the patent in suit is a pioneer patent and also the opinion of Judge Schoonmaker (42 F. (2d) 737) wherein Judge Schoonmaker found that we are dealing here with a new article of manufacture, never before the issuance of the Benedictus patent in suit known to the glass, automobile or any other industry.

We confidently assert that the ruling of the Court of Appeals on the point here discussed not only does complete justice between the parties to this litigation but also is in harmony with the decisions of this Court and with the decisions of the Circuit Courts of Appeals wherein the facts are analogous or parallel to the facts in the instant case.

Some of the decisions of this Court and of Circuit Courts of Appeals in harmony with the ruling in the instant case are:

Westinghouse v. *Wagner Mfg. Co.*, 225 U. S. 604, 614 (June 7, 1912, Justice Lamar);

Crosby Valve v. *Safety Valve*, supra;

Manufacturing Co. v. *Cowing*, 105 U. S. 253, 255, (October 1881, Chief Justice Waite);

Carborundum Co. v. *Electric Smelting Co.*, 203 Fed. 976, 981, (C. C. A. 3rd, March 15, 1916, Bradford, D. J.);

Conroy v. *Penn. Elec. & Mfg. Co.*, 199 Fed. 427 (C. C. A. 3rd, October 11, 1912, Witmer, D. J.);

Computing Scale Co. v. *Toledo Computing Scale Co.*, 279 Fed. 648, 677 (C. C. A. 7th October 4, 1921, Baker, C. J.);

Wales v. *Waterbury*, 101 Fed. 126, 129 (C. C. A. 2nd Feb. 28, 1900, Wallace, C. J.).

We submit that the rule applicable to the instant case is the rule enunciated in *Westinghouse* v. *Wagner,* supra, at page 614, to-wit:

> "(b) Where a patent, though using old elements, gives the entire value to the combination, the plaintiff is entitled to recover all the profits. Hurlbut *v.* Schillinger, 130 U. S. 456, 472."

That rule, we submit, is applicable to this case in accordance with the reasoning of this court at page 615 of the *Westinghouse* decision. This infringer has obviously sought to nullify the patent owner's statutory right by ingeniously smothering the patent with alleged improvements in apparatus for making one of the raw materials that goes into the patented product, asserting that since it was able to effect great savings (profits) by the use of those apparatus patents, it should be permitted to retain that saving (profit), even though it be eminently clear that because of that saving it was able to and did undersell the patent owner and thus drive it from the laminated glass business.

Manifestly, any rule that results in such consequences demonstrates that either the rule or its application is wrong. As this Court said in the *Westinghouse* case, the error is in the application of any rule which results in such a consequence and therefore the necessity of Rule (b) of the *Westinghouse* case.

No doubt there are patents where difficulty arises in determining whether the patented article is a complete innovation—a new article, in the broadest meaning of that word "new". But that is not the case with the patent involved in this suit. The District Court and the Court of Appeals (42 F. (2d) 737 and 739) found that the patent here involved was a complete innovation, a pioneer patent and an article never before known to any industry. It is not a patent for glass but for an article that takes the place of glass, partaking of the virtues and advantages of glass and having none of the disadvantages of glass. Surely Rule (b) of the *Westinghouse* case applies to such a patent.

DEFENDANT'S CITATIONS. The defendant's citations fall wide of the mark. In the two *Stromberg* cases cited in defendant's brief, the patent in suit did not cover a unitary carburetor structure but only a particular improvement in a carburetor. The infringer paid royalties on another patented improvement which was incorporated in the infringing carburetor and which enhanced its salable value. The Court concluded that the royalties paid were an expense chargeable against the infringing business.

These *Stromberg* cases fall within the purview of Rule (d) stated at page 614 of *Westinghouse* v. *Wagner,* supra. That rule has its proper place in the law of patent accounting and no one disputes it. But the Court of Appeals in the instant case has found that the twenty-six patents for apparatus for making plate glass contributed nothing to the profits derived from the sale of laminated glass and concludes that the instant case falls within Rule (b) of the *Westinghouse* case, supra. To say that cases like the *Stromberg* cases, conflict with the decision of the Court of Appeals in the instant case is to say that this Court in the *Westinghouse* case, supra, enunciated conflicting rules. This of course is obviously unwarranted.

Again at page 55 of the defendant's brief, the argument is made that if the *Westinghouse* case is applicable to the instant case, then the *Westinghouse* case is in conflict with the decision in *Cincinnati Car Co.* v. *New York Rapid Transit Corp.,* 66 F. (2d) 592, 593, 594. Disregarding the impropriety of such an argument, let us examine the *Cincinnati* case, supra, to determine what was involved.

The patent there involved was for a vestibule between cars in what is called an "articulated train", that is, the adjacent ends of each car on the train are carried by a single truck, thus avoiding the need of two trucks for each car (35 F. (2d) 679). The question involved in the *Cincinnati* case, supra, was whether on a finding of infringement of such a patent, the infringer was liable for (1) all the profits of the railroad; or (2) all the profits aris-

ing from the use of articulated cars. The holding is that there was no way of showing how much the infringing patent contributed to the profits of the railroad, and therefore the patentee was relegated to a recovery on the basis of a reasonable royalty.

Certainly, Judge Learned Hand did not intend or expect that an intelligent reading of his opinion in the *Cincinnati* case would lead to the conclusion that he was in disagreement with this court, or that this court had laid down a rule of law that is of impracticable application.

As we read the *Cincinnati* opinion, Judge Hand merely points out the difficulties that are often attendant upon the application of the ruling relating to the burden of proof, using a nice figure of speech to emphasize the point, but recognizing, however, that such difficulties must and always are resolved by the proper forum. For example, Judge Hand resolves the difficulties in the *Cincinnati* case. What was "left at large" in the *Westinghouse* case (i. e., whether the entire salable value is attributable to the patent in suit) has been resolved in the instant case in favor of the patent in suit by the Court of Appeals.

The defendant also relies on the following cases:

Mason v. *Graham,* 23 Wall. (U. S.) 261 (decided October 1871, Mr. Justice Strong);

Mowry v. *Whitney,* 14 Wall. (U. S.) 620 (decided December 1871, Justice Strong);

Tilghman v. *Proctor,* 125 U. S. 136 (decided March 19, 1888, Mr. Justice Gray).

In *Mason* v. *Graham* the patent sued on covered an improvement in a picker-staff mechanism for attachment to a loom. It is clear from a reading of the decision that the entire commercial value of the mechanism was found not to have been derived from the patent in suit. The Court held that there was therefore presented a proper case for apportionment. Either that is the proper explanation of

that case or else it is entirely inconsistent with the later decisions of this Court.

In this same category, we submit, must fall the decision in *Mowry* v. *Whitney*, supra. This Court in *Warren* v. *Keith*, 155 U. S. 265, 269 (December 3, 1894, Justice Shiras) has held that *Mowry* v. *Whitney* and kindred cases are confined to situations where the patent does not give the "entire value to the combination". That being so, *Mowry* v. *Whitney*, and similar cases are not applicable to the instant case.

Tilghman v. *Proctor* was an accounting for a process patent. The measure of the recovery therefore was the saving effected by the new process over the old process, even though it was conducted at a loss. So far as we read the case, there is no question of apportionment of profits involved.

In view of the foregoing discussion, we respectfully submit that the rule applied here by the Court of Appeals is the appropriate rule.

3

Method of Stating the Account.

THE RULING: The Court of Appeals holds that "proper accounting procedure" requires that, where the infringement of a product claim is being accounted for, each sale constitutes a separate infringement; that the profit derived from each sale must be accounted for and turned over to the owner of the patent; that if some sales resulted in losses, the infringer must bear the losses and may not offset the loss-incurring sales against the profitable sales (R. 913).

This ruling of the Court of Appeals is fundamental in all patent accountings.

Crosby Valve Co. v. *Safety Valve Co.*, supra;
Callaghan v. *Myers*, supra;
McKee Glass Co. v. *Fry Glass Co.*, supra;
Permutit Co. v. *Refinite*, supra.

The above cited cases of this Court and of some Circuit Courts of Appeals which might be accumulated almost indefinitely, have been accepted as a guide for the various District Courts, one example of which is that cited by the Court of Appeals—*Electrical Engineers Equip. Co.* v. *Champion Switch Co.*, 49 F. (2d) 359 (D. C. W. D., N. Y., February 10, 1931, Hazel, D. J.) where it was held that losses incurred by the infringer from the sale of the infringing article below cost are not deductible from the profits found to be due the patentee.

Here too, we submit, the Court of Appeals has not said that this rule must be inexorably applied to every case—it says only that it finds "no substantial factors in the instant case on these issues which differentiate it from the cases cited" (referring to the cases cited above under this heading).

The statements at page 59 of defendant's brief that the Court of Appeals has ruled that this rule is "rigid" and must be applied to every case is, therefore, unwarranted.

The Master and the District Court "recognized" that this rule was so long established as to become practically fundamental in an accounting procedure (R. 812, 813, 875). But, having "recognized" it, both the Master and the District Court disregarded it. The Court of Appeals has said that it is not sufficient to "recognize" a rule but it must also be applied in an appropriate case.

The defendant's cost system afforded an easy way to determine which infringing sales were made at a profit and which at a loss (R. 812, 814). Indeed defendant adopted its particular cost system to enable it to make that very determination. The plaintiff, therefore, using defendant's own cost system, determined those facts.

The only reason for the Master's and the District Court's refusal to apply this fundamental rule is that the infringer in the instant case was engaged in a regular and continuous business during the period in which it made the infringing sales (R. 813, 874).

The question, therefore, is whether that fact distinguishes the instant case from the facts presented in the cases cited above so as to make the rule of law stated in the cited cases inapplicable here. The Court of Appeals said it did not.

We respectfully submit that the regularity and continuity of the business of the infringer in this case was in no degree different from the regularity and continuity of the business involved in the *Crosby* and *Callaghan* and other cases cited above.

The same practical problem that confronted the Master and the District Court in the instant case, confronted this Court and the other Courts in the cases cited above. No infringer usually engages in a business that is not regular and continuous, nor was there ever a cost accounting system which was able to ascertain "specific costs" in the sense of that term as used by defendant. It is elementary that every cost accounting system that was ever devised averages over all units, the labor, the material and the overhead elements of cost.

The determination of the average monthly cost per square foot of laminated glass and the offsetting of that monthly average cost against the selling price per square foot, for which it was sold, is the identical manner in which the defendant itself, in keeping its books, ascertained its profits and losses (R. 107, 930A-C, 812-813).

The four reasons stated by the Master (R. 813) as to why in this particular instance average costs do not reflect specific costs, are present in every business.

The difference in the amount or quality of material used in fabricating each unit, does not differ any more substantially in the instant case than in most other cases.

The cutting losses or other losses in processing are seldom equal in any business.

We believe due credit was given for Edgework and if it was not, the failure to do so rests upon the petitioner in this case, on whom the burden of showing its cost rested.

All fabricated articles require a template, a pattern, a die or a drawing, each of which serves its purpose as well for a thousand as it does for ten.

Accordingly, the infringing business in the instant case does not differ in any of the elements of costs from other businesses which have been the subject of patent infringement accounts, and in which the Courts have held that the method directed to be followed by the Court of Appeals is the correct method.

The defendant's argument on this point, as on the other points involved in this case, is predicated on the assumption that there is some inequity in a rule which forces a tortfeasor to bear all losses occasioned by his wrongdoing while giving the injured party all the gains. The assumption in this argument is clearly erroneous because, as this court said in the *Westinghouse* Case, at page 620:

> "On established principles of equity, and on the plainest principles of justice, the guilty trustee cannot take advantage of his own wrong. The fact that he may lose something of his own is a misfortune which he has brought upon himself, and if, as argued, the fund may have been made by the use of other patents also for which he may be liable in another case, it is again a misfortune he has brought upon himself and an instance of a double wrong and double liability. He cannot appeal to a court of conscience to cast the loss on an innocent patentee and by judicial decree repeal the provisions of Rev. Stat. 4921, which declares that in case of infringement the complainant shall be entitled to recover the profits to be accounted for by the defendant."

DEFENDANT'S CITATIONS: Defendant asserts that the conclusion of the Court of Appeals as to the proper method of stating the account conflicts with cases in other Circuit Courts of Appeals cited by it.

However, the cases cited by defendant do not hold that an account of a "continuous" manufacture of many infring-

ing products may be stated in the aggregate as though it were a single infringement, rather than setting out the particular sales, but on the contrary, in one of the cases cited, the court expressly disapproved of such a method of stating the account.

In *MacBeth Evans Glass Co.* v. *L. E. Smith Glass Co.*, 23 F. (2d) 459, the Third Circuit Court of Appeals does discuss the method of stating a patent account and there expressly disapproves a method which stated the account in the aggregate as if the infringer's conduct constituted one "continuous infringement". At page 462 of the opinion, the court, after pointing out the well recognized distinction between an account for the infringement of a process patent and an account for the infringement of a product patent (as is involved here) says of its prior opinion in *Continuous Co.* v. *Schmertz Co., supra:*

> "The infringing accountant disclosed its infringement as one continuous operation. Whether this was the proper way to start and conduct an accounting was a matter with which this Court was then not concerned for it was accepted by everyone, *although it did venture an adverse comment on the method pursued"* (Italics ours).

As to the opinion of the District Court in *MacBeth Evans* v. *L. E. Smith Glass Co.*, 21 F. (2d) 553, 555, it rested on a misconception of the holding of this Court in the *Crosby* case, supra, and the holding of the Third Circuit Court of Appeals in *Continuous Glass Press Co.* v. *Schmertz Wire Glass Co.*, supra. The Third Circuit Court of Appeals calls attention to the District Court's misconception of these decisions at page 461 of 23 Fed. (2d).

As to the opinion in *Christiansen* v. *National Brake & Elec. Co.*, 10 F. (2d) 856 (D. C. E. D. Wisc. August 14, 1924; March 2, 1926, Geiger, D. J.) we submit that the court did not hold that just because there is continuity of manufacture, the account must be stated in the aggregate as if it were a single infringement. Judge Geiger says at page

871 that he intended no such conclusion to be drawn from his opinion. As we read that opinion, the scope of it is that where a particular infringing defendant has fixed selling prices for a certain number of selling units so as to have the selling prices of that certain number absorb the greater part or the whole of the overhead, still leaving a profit; and has fixed selling prices for other units at a lower figure, which lower selling prices for those other units are so fixed as to absorb the lesser part, or no overhead, still leaving a profit, that such a mode of conducting a business where it exists, must be reflected in any patent infringement account.

Thus limited, the decision in the *Christiansen* Case does not find any application to the facts in the instant case.

There is no evidence in the instant case that the infringer fixed its selling prices for the purpose of saving overhead but on the contrary the proof in the instant case is replete with facts from which the reasonable inference must be drawn that the sole object of the infringer in fixing its selling prices was to undersell the patent owner and thus get the business away from the patent owner.

The facts in *Union Welding Co.* v. *Curry*, supra, are discussed at page 14 of this brief. We are unable to follow the defendant's implied argument that because Judge Denison allowed a loss in 1912 as an offset against profits in subsequent years, he therefore approved the method of stating an account in the aggregate, particularly as he disallowed a similar loss in 1916, when profits were being made.

In view of the foregoing discussion, it is respectfully submitted that if the account is stated in the manner directed by the Court of Appeals, no injustice will be imposed on the defendant, and it is further respectfully submitted that the cases cited by the defendant show no conflict either with the decisions of this Court or with the decision of any other Circuit Courts of Appeals.

II.

General Damages.

1.

May general damages be awarded without giving defendant the right to examine plaintiff's books?

THE RULING: The Court of Appeals has ruled that a patent owner in an infringement suit is not charged with the burden of proving that his damage "is *not* susceptible of calculation and determination with reasonable certainty" (R. 920).

It is respectfully submitted that to impose such a burden on the plaintiff in a patent infringement account would defeat the whole purpose of the Patent Laws. How could any plaintiff ever hope to prove such a negative?

We submit, further, it is improper to garble the sense of Section 4921 of the Revised Statutes of the United States in the way defendant has done it at page 68 of its brief. By the omission of whole phrases and by an abuse of the asterisk, thereby crediting subjects to verbs that are not their subjects at all, the defendant has completely distorted the intent of the Act of Congress.

The purpose of the amendment to Section 4921 of the Revised Statutes, inserted in 1922, was solely to enact into the statute the discretionary power in the Court to accept opinion or expert testimony on the question of the patent owner's damage and to declare such testimony competent.

The Statement on page 68 of defendant's brief that Section 4921 of the Revised Statutes did not authorize the award of general damages prior to 1922, discloses a rather amazing misconception of the law. This Court and the Courts of Appeals were awarding general damages years before the 1922 Amendment.

Suffolk v. *Hayden,* 3 Wall (U. S.) 315, 320 (December 6, 1852, Justice Nelson);

Dowagiac Mfg. Co. v. *Minnesota*, 235 U. S. 641 (January 11, 1915, Justice Van Devanter);
Bemis Car Co. v. *J. G. Brill*, 200 F. 749, 761 (C. C. A. 3rd, November 7, 1912, Buffington, C. J.);
U. S. Frumentum Co. v. *Lauhoff*, 216 F. 610, 617 (C. C. A. 6th June 30, 1914, Denison, C. J.).

The defendant's whole argument under this heading is predicated on the erroneous assumption that plaintiff has failed to offer any proof of facts by which its damages may be measured. This erroneous assumption utterly disregards the findings of the Master and the proof in the record. The Master has found that the plaintiff had an investment of $2,800,000. The evidence is that defendant is indirectly one of the purchasers of the physical assets of plaintiff's business (R. 525-529), and the clear inference from the evidence is that the price paid by the defendants and its associates was such as might be expected from a forced sale. Plaintiff's investment has been destroyed by being driven from the industry (R. 826).

The defendant, by its own admission, has profited to the extent of $2,465,562.72 (R. 1038, 844A & B).

The Master and the District Court have found that even after giving credit to the defendant for the "Rejects" and "Returns", defendant still retains profits, which it asks this court to allow it to keep by way of allowance for use of patents, federal income tax and interest on investment, in the amount of $1,862,456.12 (R. 844B).

The Master has found this loss to the plaintiff and this gain to the defendant was brought about by the defendant's method of cutting prices to such an unconscionable degree as to take the plaintiff's customers from it and drive it out of the laminated glass business (R. 826).

The Master has found that the plaintiff spent $250,000 of its own money and caused the Ford Motor Company to spend $15,000,000 for advertising, the result of which was

to each the general public the advantages of laminated glass (R. 825).

There is proof in the case also by men highly qualified by long experience in the negotiation of patent license agreements, that in view of the facts of this case, a rate of royalty as high as 20% of the manufacturer's selling price would be reasonable (R. 820).

There is proof in the case that in the short space of three years, this laminated glass business built upon the patent in suit grew from nothing in 1926 to over 8,632,000 square feet of laminated glass in 1929 and the prophecy of Mr. Higgins (R. 635) that in 1933 every automobile manufactured in the United States would be fully equipped with laminated glass, has eventuated.

It is therefore respectfully submitted that the assumption of the defendant that there are no facts in the record which can act as a yardstick for measuring the plaintiff's damages, is unwarranted.

The defendant asks this Court to answer the question —"May general damages be awarded without giving the defendants an opportunity to calculate the plaintiff's actual damages?"

The question as stated seems to imply that what the courts term "general damages" is something different from actual damages. This is a new theory. It is generally assumed that what the Courts term "General Damages" was an effort on the part of the courts to approximate actual damages and, therefore, when so approximated, become actual damages.

The fact is the plaintiff here positively and abundantly proved that it had been actually damaged in a substantial amount. It was then its duty to prove how that damage could be measured. It sought to discharge that duty by offering proof by which it believed the Master could measure damages under the following recognized rules: (a) Established Royalty (R. 816); (b) Lost Sales (R. 817);

(c) Prices Reduced (R. 818); (d) General Damages or Reasonable Royalty (R. 819).

The Master found that plaintiff had failed to meet the requirements of the law for measuring its damages under (a), (b) and (c) but had fully met the requirements of the law for measuring its damages under (d). We submit that the purpose of the clarification of the law in the *Dowagiac* Case was to meet just such a situation.

Defendant now argues that it should have been permitted to endeavor to supply proof by another recognized measure, viz., "Lost Profits". It argues that because it was not permitted to examine plaintiff's books, it was deprived of the right to show that the plaintiff had suffered only small damage and that if it had been accorded that right and if it could have shown, in the exercise of that right, that plaintiff lost a profit of only One Dollar on a single sale, plaintiff should have been relegated to the recovery of only that amount, that is, to the recovery of only such "small" damage as defendant might see fit to prove. We submit the argument carries its own refutation. Particularly is this so, *in the instant case, when we consider* the facts as they have been found and as they are set out above.

The only purpose that possibly could be served by permitting the defendant to fish through plaintiff's books would be delay, to the end, as defendant argues, that it might find something to cause the Master to change his mind and award a lesser sum than he has awarded.

Certainly the arguments of defendant are not supported by the authoritative decisions of this court as enunciated in the cases cited above, nor in the decisions of the Courts of Appeals cited above.

DEFENDANT'S CITATIONS: If *Wallace & Tiernan* v. *Syracuse*, 49 F. (2d) 693 (C. C. A. 2nd, L. Hand) at the cited pages 694, 695, does stand for the proposition that it is a statutory condition precedent to an award of general dam-

ages (reasonable royalty) that the plaintiff must show that his actual damages "be not susceptible of calculation and determination with reasonable certainty", then as the Court of Appeals has said (R. 920) that decision must either be confined to the special facts present in the *Wallace & Tiernan* case, or else it is in conflict not only with the decisions of this Court but the decision of the same Judge in *Cincinnati Car Co.* v. *New York Rapid Transit Corp.*, 66 F. (2d) 592 (C. C. A. 2nd L. Hand).

By no intelligent reading of the other authorities cited on page 70 of defendant's brief can any of them be said to rule that "it is a statutory condition precedent to an award of general damages (reasonable royalty) that actual damages be not susceptible of calculation and determination with reasonable certainty".

Overman Cushion Tire Co. v. *Goodyear Tire & Rubber Co.*, 66 F. (2d) 361 (C. C. A. 2nd, July 17, 1933, Manton, C. J.) must have been cited for the reason that the Circuit Judge cites *Wallace & Tiernan Co.* v. *Syracuse*, supra, as being a holding that the award in the *Wallace & Tiernan* case was for a reasonable royalty "because the exact amount of damages could not be proved."

Enterprise Ry. Equipment Co. v. *Wine Ry. Appliance Co.*, 77 F. (2d) 159 (C. C. A. 6th, May 14, 1935, Moorman, C. J.) at the cited page 161, simply holds that since in that case the profits derived by the infringer from its infringement had been determined, there was no necessity to go into the question of whether a royalty should be awarded.

It is incomprehensible how any one can spell out of the citations of defendant a holding that it is a condition precedent to an award of general damages (reasonable royalty) that actual damages be not susceptible of calculation and determination with reasonable certainty.

We submit that on the record presented to the Master he could not in conscience have granted a smaller amount than the present award of $414,120.70. That amount is

about one-seventh of plaintiff's investment in its business; about one-sixth of amount which the defendant made from the billing price of glass ($2,465,562.77) and about one-fifth of the amount which plaintiff's experts testified would have been a reasonable royalty for defendants to have paid.

We further respectfully submit that the Master's award does not compensate the plaintiff for the great and irreparable wrong done it by this defendant's unconscionable infringement.

It was for this reason, no doubt, that the Court of Appeals has applied the rules of law discussed above, to the end that justice might be done and full compensation awarded the plaintiff.

2.

Interest.

THE RULING: The Court of Appeals on this point ruled that "since the case is one in equity, the matter of interest is one within the court's discretion".

We respectfully submit that the ruling of the Court of Appeals is fundamental in the Federal Courts.

Bates v. *Dresser,* 251 U. S. 524, 531 (March 1, 1920, Mr. Justice Holmes);
Miller v. *Robertson,* 266 U. S. 243, 256, 257, 258 (November 17, 1924, Mr. Justice Butler).

These two cases were not patent cases but a patent case is only a tort and the rule of law does not differentiate a patent case from that upon any other tort.

In *Miller* v. *Robertson,* above, this Court held—"When necessary in order to arrive at fair compensation, the Court in the exercise of a sound discretion may include interest or its equivalent as an element of damages", and thereupon

imposed interest from a date prior to the liquidation of the damages.

Starr Piano Co. v. *Auto Pneumatic Action Co.*, 12 F. (2d) 586, 587 (C. C. A. 7th, March 10, 1926, Page, C. J.);
Merrell Soule Co. v. *Powdered Milk Co.*, 7 F. (2d) 297, 300.

The Court of Appeals in this case after a review of the record has found "nothing in the record on which to base a ruling that the District Court abused its discretion" (R. 922).

III.

1.

Good Faith.

This point is discussed because of our feeling that it has a direct bearing on this appeal and the arguments advanced to this Court by the defendants to the effect that the Court of Appeals has unconscionably penalized the defendant.

We submit that in the consideration of each of the alleged errors presented by the defendant to this Court, it should be borne in mind that the Court of Appeals erred in defendant's favor in respect of the knowledge and intent with which defendant entered the infringing business and the manner of its conduct after it entered that business.

THE RULING: The Court of Appeals has ruled that there is evidence in this case to support the Master in his finding that this defendant did not act with wilfulness or deliberation in initiating and carrying on its infringement.

We do not know what evidence the Court of Appeals could possibly be referring to in this ruling. Certainly no such evidence is reflected in the findings of the Master.

The Master rested his conclusion that the defendant did not act deliberately and wilfully on the single fact that the defendant was advised by its counsel that *if it did not dry its gelatine it would not infringe*. But this advice of counsel was not followed. The defendant did dry its gelatine and it knew it was drying it. The advice of counsel to this defendant, therefore, does not negative deliberateness, wilfulness and wantonness, but rather emphasizes it.

The District Court predicated its conclusion that the defendant's infringement was not wanton and deliberate on the single erroneous finding that the defendant "took the advice of counsel who not only examined plaintiff's patent, but the *'plaintiff's process'*, in the manufacture of laminated glass, after which defendant's counsel gave to the defendant his legal opinion that their method did not infringe plaintiff's patent."

We assert that there is no evidence in the record to support such a finding. In the first place, it is not supported by the Master's finding to the effect that counsel's advice was that *"if defendant did not dry its gelatine it would not infringe"*. In the second place, defendant's counsel did not and could not render an opinion on infringement based on an examination of plaintiff's process, since what plaintiff was doing could not possibly indicate whether defendant infringed.

Finally, the Court of Appeals repudiated the District Court's finding, saying that it could not accept as a general principle of law that the advice of counsel, prior to infringement, precludes further inquiry into the good faith of an alleged infringer. Support for that repudiation will be found in *Lee* v. *Malleable Iron*, 247 F. 795 (D. C. E. D. Wisc. Jan. 15, 1918, Geiger, D. J.; affirmed C. C. A. 7th, 263 F. 896).

We confidently assert that every finding of the Master points to deliberateness and wilfulness. The fact that defendant knew of the patent (R. 827); that it told plaintiff

it was not drying its gelatine when in fact it was drying it (R. 794); that it waited before going into the business until plaintiff had established the market (R. 830); that it rushed into the business without adequate preparation (R. 254, 274, 324); that it unconscionably cut prices (R. 826); that it knowingly took business away from plaintiff (R. 826); that it preconceived the plan of hiding the profits it made from its infringement by its billing price of glass to one of its departments, and its use of its patents on apparatus for making the glass, all point to a conclusion of deliberate and wilful infringement.

Based on this, what we conceive to be an error on the part of the Court of Appeals, that Court allowed this defendant $216,540.76 as Federal Income Tax and $358,784.77 as Interest on Investment. Whatever may be said of a tax, certainly interest on investment is a profit. Had the Court of Appeals not fallen into this error, as we conceive it, neither of these two items could have been allowed in view of the decision of this Court in *Larson Co.* v. *Wrigley Co.*, 277 U. S. 97, 99 (May 14, 1928, Mr. Justice Holmes).

Just why the Master, the District Court and the Court of Appeals each arrived at the conclusion that this infringer did not initiate and carry on its infringement deliberately, wilfully and wantonly will always remain a mystery in this case, unless this Court sees fit to brush aside the veil.

2.

Conclusion.

In conclusion, we submit that whether the infringement was deliberate or innocent, on the application of the appropriate rules of law to the facts found by the Master, the District Court and the Court of Appeals—

1. This defendant should not be permitted to charge against profits the cost of making defective product.

2. It should be allowed only the manufacturing cost of the one-eighth inch plate glass that it used in the infringement.

3. No allowance should be made to it for the use of its patents.

4. It should be compelled to state the account by the method adopted to show each individual sale as a separate infringement.

Respectfully submitted,

AMBROSE L. O'SHEA,
WILLIAM B. GREELEY,
DRURY W. COOPER,
Counsel for Respondent.

SUPREME COURT OF THE UNITED STATES.

Nos. 767 and 768.—October Term, 1935.

Duplate Corporation and Pittsburgh Plate Glass Company, Petitioners, *vs.* Triplex Safety Glass Company of North America, Respondent.	On writs of certiorari to the United States Circuit Court of Appeals for the Third Circuit.

[May 18, 1936.]

Mr. Justice Cardozo delivered the opinion of the court.

The subject of this controversy is the measure of petitioners' liability for damages and profits under a decree for an accounting by infringers of a patent.

Respondent, complainant below, is the owner of a patent, number 1,182,739, for the making of laminated glass, which will crack, but not shatter. The product is better known as "safety" or "shatter-proof" glass, and is used very largely in the making of automobiles. In the process of manufacture, a sheet of pyralin or celluloid is sandwiched between two thin sheets of plate glass, each ⅛ of an inch thick, the pyralin being cemented to the opposite glass sheets by a film of gelatin. The heat and pressure necessary to induce adhesion are applied to the "sandwiches" in a receptacle known as an autoclave, a steel boiler of large size. At the end of the process, the glass and the pyralin are firmly joined together with the appearance of a single sheet. For users of motor cars the risk of injury from flying glass is greatly reduced, if not removed altogether.

Complainant had a decree against the Duplate Corporation, one of the petitioners here, for an infringement of this patent. 42 F. (2d) 737; 42 F. (2d) 739. Later a supplemental decree was entered against the other petitioner, Pittsburgh Plate Glass Company, the owner of fifty per cent of the stock of Duplate. Pittsburgh was a contributory infringer, supplying Duplate, its subsidiary, with the glass, which was then wrought into the finished product. An accounting followed before a master. The defendants satisfied the master that they were not conscious or deliberate infringers. The finding by the master in that regard was approved by the District Court and later by the Court of Appeals. It will be accepted as a datum here. The account is to be stated on the assumption that the defendants, though infringers, have acted in good faith. Cf. R. S. § 4919, 4921; 35 U. S. C. §§ 67, 70; *Larson Co.* v. *Wrigley Co.*, 277 U. S. 97.

The controversy as to the measure of liability divides itself into two branches, one concerned with the defendants' profits, the other with the complainant's damages. In reckoning the profits, the master made allowance to the defendants for the cost of labor and material wasted without fault in the manufacturing process. This amounted to $1,192,264.32 ($435,207.52 for loss of glass; $219,036.93 for loss of pyralin; $538,019.87 for loss of labor and material other than glass or pyralin.) The master made allowance also for the cost of labor and material that entered into merchandise returned by the defendants' customers for defects afterwards discovered. This amounted to $504,137.45. He refused to make allowance for more than the manufacturing cost of the material bought by one defendant from the other, but did allow the saving effected by the use of patented devices. He found himself unable to ascertain the specific costs of operation to be attributed to sales that had been made at known prices, and refused in stating the account to compare specific prices with average costs of operation, and fix the liability accordingly. Instead, he treated the business as one continuous infringement, a unitary transaction, comparing average costs with average prices. Through this method of computation he arrived at the conclusion that during the period covered by the accounting the defendants had operated at a net loss of $276,857.47 in the sale of the infringing product. That being so there was nothing owing on the score of profits.

"In patent nomenclature what the infringer makes is 'profits'; what the owner of the patent loses by such infringement is 'damages' ". *Diamond Stone-Sawing Machine Co.* v. *Brown*, 166 Fed. 306. The master found the evidence insufficient to show the extent of the sales that the complainant could have made if the defendants had not infringed, or what the sales would have netted even if they had been made. He did find, however, that the effect of the infringement had been to drive the complainant out of business, and that a few sales which had been made were at greatly reduced prices, with a loss of $2,807.89 as a result of the enforced reduction. The diverted sales, if any, and their value being not susceptible of proof, the master held that general damages should be awarded on the basis of a reasonable royalty to be paid by the defendants upon their sales of the infringing product, whether gainful or the opposite. Cf. *McKee Glass Co.* v. *H. C. Fry Glass Co.*, 248 Fed. 125, 129. This royalty was ascertained to be $414,120.70. Nothing was said by the master as to an award of interest.

The District Court modified the report by striking out the item

of damages by reason of price reductions ($2,807.89) and confirmed it as thus modified, adding, however, interest on $414,120.70, the award of general damages, from the date of the last infringement (May 31, 1930). 10 F. Supp. 420. There were cross-appeals to the Circuit Court of Appeals for the Third Circuit. On the appeal by the defendants, the decree was affirmed. On the appeal by the complainant there were far-reaching modifications. All allowances for factory losses and for customers returns were rejected. These amounted altogether to $1,696,401.77. There was also a rejection of the savings effected by the use of patents. They had been fixed by the master at $1,108,692.73. The method of stating the account was recast by directing a comparison between average costs and specific prices instead of average costs and average prices. The cause was remanded with instructions to restate the account in conformity with the principles laid down in the opinion. 81 F (2d) 352. To settle important questions as to the liability of infringers, writs of certiorari were granted by this court.

1. *Factory losses incurred as a necessary or normal incident to the completion of sales effected at a gain.*

A sale resulting in a loss may not be offset by an infringer against another and independent sale resulting in a gain for the purpose of extinguishing or reducing a liability for profits. *Crosby Valve Co.* v. *Safety Valve Co.*, 141 U. S. 441, 457. On the other hand, the extent of the gain resulting from a sale is not susceptible of ascertainment without the deduction and allowance of the incidental costs. *MacBeth Evans Glass Co.* v. *L. E. Smith Glass Co.*, 21 F. (2d) 553, 555; *Canda Bros.* v. *Michigan Malleable Iron Co.*, 152 Fed. 178, 180; *Levin Bros.* v. *Davis Mfg. Co.*, 72 F. (2d) 163, 165, 166; *Stromberg Motor Devices Co.* v. *Detroit Trust Co.*, 44 F. (2d) 958, 963, 964. To make the product of a factory ready for the market labor and material must be consumed by the seller-manufacturer. The cost of such consumption does not cease to be a charge against the proceeds because viewed in isolation it may be classified as waste. If the waste is unavoidable or even fairly to be expected in the normal course of such a business there is a diminution of the profit for an infringer as for others. Cf. *Rubber Co.* v. *Goodyear*, 9 Wall. 788, 804. "Losses occurring concurrently with the gaining of profits should be taken into account, if they resulted from the particular transaction on which profits are allowed." *MacBeth Evans Glass Co.* v. *L. E. Smith Glass Co., supra; Canda Bros.* v. *Michigan Malleable Iron Co., supra.* They are the charges that must be known before profits can be estimated.

Adherence to that principle sustains the ruling of the master that in measuring the gain from particular transactions the defendants should have allowance for the expense of incidental wastage, unless the wastage is so great as to overpass the bounds of reason. Cf. *Continuous Glass Press Co.* v. *Schmertz Wire Glass Co.*, 219 Fed. 199, 203. No such excess may be imputed to the manufacturing defendant, as is evident from the testimony and the findings of the master. The causes of waste are many. Inevitably a certain amount of glass is lost in the cutting. Grit and dust clinging to the pyralin even in minute particles produce defects destructive of the product as a merchantable commodity. A like result will follow from the intrusion of a hair. To make the situation worse, a sheet of pyralin is charged with static electricity which acts as an attractive force to bring loose particles together. There is also chipping of the glass as well as other damage in the course of transportation from one department to another. Even more destructive is the damage to the sheets under pressure in the autoclave, the crimping of the edges opening a channel into which water tends to seep. Most of this wastage is unavoidable, though extraordinary precautions have been taken to overcome it. To some extent, however, the loss has been diminished by improved methods of manufacture, unknown to the business in its infancy, but progressively developed as the outcome of experience. Thus, to purify the atmosphere and dispel dust or other particles a separate room has been built, supplied with filtered air. Experiments carefully made have been followed by improvements that reduce the risk of damage when the sheets are under pressure. At all times the business has been conducted with a high degree of care. Even when glass has been chipped or broken in being moved from place to place, there is no evidence that appropriate precautions were omitted to make the loss as small as possible. Some percentage of breakage is a normal, indeed a necessary incident to the handling by human instruments of so fragile a commodity. The situation is tersely summarized in the findings of the master. "The Master is satisfied from the evidence that a considerable amount of the finished product had to be turned out only to be rejected or returned in order that a certain volume of perfect specimens might be sold. It was also established by the evidence that even the Ford Motor Company, in making laminated glass under its agreement with the plaintiff, was required to produce five million windshields in order to obtain four million good ones,—and it appears as self-evident to the Master that in the case of Ford, as in the case at bar,

the cost of producing the good ones necessarily included the cost of producing the million bad ones, but for which the good ones could not have been produced."

In the light of these findings and others to the same effect, the distinction becomes evident between the situation in this case and that in the case of the Crosby valves. 141 U. S. 441, 454, 457. Metal valves had been manufactured as the result of a process of experiment (*Ibid.*, p. 454), and had been destroyed when returned or when found to be defective. "The defendants were not charged on valves which were subsequently destroyed, or, if so, they were not charged upon the new valves which replaced them," *Ibid.*, p. 457. They asked, however, for something more. They contended that the valves so destroyed "ought to form a credit against the profits actually realized . . . on other valves." This contention was rejected. The valves discarded or returned were experimental only, as the opinion of the court informs us. *Ibid.*, p. 454. Cf. *Union Electric Welding Co.* v. *Curry*, 279 Fed. 465, 467; *Page Machine Co.* v. *Dow, Jones & Co.*, 238 Fed. 369, 374. The record does not indicate that the defects were necessary or normal incidents to producing the infringing article. Credit will be allowed for the cost of abortive effort when cost has been incurred as an unavoidable or reasonable preliminary to the particular transaction on which profits are recovered. *MacBeth Evans Glass Co.* v. *L. E. Smith Co., supra.* Credit will be refused when this nexus is not established. We have no thought to impugn the correctness of the decision in the case of the defective valves either as applied to its own facts or in cognate situations. We are unwilling to extend it to the costs in controversy here.

The ruling of the master as to the items here considered is accordingly approved.

2. *The allowance of the cost of glass sold by Duplate to its customers, and returned by the customers for defects afterwards discovered.*

These sales were mere futilities. They did not yield a profit for which the sellers have been charged. They were not preliminary to other sales refilling the same orders. At least there is nothing in the record to imprint that quality upon them. They have no place in the account at all. By the ruling of the master the cost of these futilities was allowed to the infringers. This we think was error. The infringers being relieved of any charge by reason of such transactions are not entitled to a credit. The case of the *Crosby Valve Company* (141 U. S. 441, 457) gives the applicable rule.

The very equities that exact the allowance of a credit where costs are but a means to realizing a profit, exact a different conclusion where profit is impossible.

3. *The measure of the allowance for glass fabricated by one infringer and furnished to the other.*

Duplate bought its glass in sheets ⅛ of an inch thick from its contributory infringer, Pittsburgh. In the computation of the profits allowance has been made for the material so furnished on the basis of manufacturing cost. The defendants now insist that the basis should be market value. The acceptance of such a measure would enable the infringers to profit by their wrong. There was no use in the automobile industry for glass so thin as this except in connection with the process described in the complainant's patent. Cf. *Duplate Corporation* v. *Triplex Safety Glass Co.*, 42 F. (2d) 739, 741. If there had been no infringing business, the large amount of glass that went into the infringing product would never have been sold at all. True, glass of that thickness was used in other industries, in train windows and toilet mirrors. The master finds, however, that Pittsburgh had been able, while supplying glass to Duplate, to respond to all demands that came from other users, the railroads and the glaziers. If as part of this accounting it is given credit for the glass at a price above the cost, it will thereby have enlarged its market to an equivalent extent and reaped a profit as infringer. Equity forbids that this result should be attained. We are referred by the defendants to *Barber Asphalt Paving Co.* v. *Standard Asphalt & Rubber Co.*, 30 F. (2d) 281, 284, as well as other cases. They were well decided on their facts, or so we now assume. The facts do not suggest the inference that the effect of the infringement was to open up a market that would otherwise have been lost.

4. *The allowance of the saving effected by the use of patented devices.*

Pittsburgh was the owner of twenty-six patents which it used for its own benefit in the making of its glass. The claim is made that if the glass is not to be taken on the basis of market value, there must at least be an allowance of a reasonable royalty as compensation for the economies effected through the patented devices. But this is to misconceive utterly the position of an infringer accounting for illicit profits. "An infringer cannot be heard to say that his superior skill or intelligence enabled him to realize profits by his infringement which a person of less skill might not have realized." *Lawther* v. *Hamilton*, 64 Fed. 221, 224. Cf.

Westinghouse Electric and Mfg. Co. v. *Wagner Electric and Mfg. Co.*, 225 U. S. 604, 614; *Carborundum Co.* v. *Electric Smelting & Aluminum Co.*, 203 Fed. 976, 982; *Conroy* v. *Penn Electrical & Mfg. Co.*, 199 Fed. 427, 430; *Armstrong* v. *Belding Bros. & Co.*, 297 Fed. 728, 732. He will be heard with no more patience in an endeavor to diminish liability by ascribing his profits to the capacity indwelling in a patent. Whatever is at his call in the service of the enterprise — brawn and intelligence, factories and lands, patents and machinery—will be viewed upon an accounting as if held upon a quasi-trust to contribute what it can to the profits of the business. The wrongdoer must yield the gains begotten of his wrong.

5. *The method to be employed in stating an account.*

Sales of the infringing product were not made at a level price. At times the price was high; at others it was low. The owner of the patent in holding the infringers to an accounting is not confined to all or nothing. There may be an acceptance of transactions resulting in a gain with a rejection of transactions resulting in a loss. Upon a statement of an account, a patentee is not looked upon as a "quasi-partner of the infringers", under a duty to contribute to the cost of the infringing business as a whole. *McKee Glass Co.* v. *H. C. Fry Glass Co.*, 248 Fed. 125, 128. He is the victim of a tort, free at his own election to adopt what will help and discard what will harm. *Crosby Valve Co.* v. *Safety Valve Co., supra; Permutit Co.* v. *Refinite Co.*, 27 F. (2d) 695, 698; *Starr Piano Co.* v. *Auto Pneumatic Action Co.*, 12 F. (2d) 586, 589; *Canda Bros.* v. *Michigan Malleable Iron Co., supra; cf. Oliver* v. *Piatt*, 3 How. 333, 401; *Buffum* v. *Barceloux Co.*, 289 U. S. 227, 236; *King* v. *Talbot*, 40 N. Y. 76, 91.

The privilege of election is not contested by the defendants if costs as well as prices can be ascertained with precision. They take the ground, however, that if such precision is unattainable, the privilege must fail. But the master has found, and the parties are agreed, that in a business of this order there is no method of accounting, not impracticably burdensome, whereby the costs of operation can be apportioned and distributed except upon an average basis. At all events, if such a method was available, the defendants did not use it. They kept their books upon the basis of the method they decry, and measured loss or gain accordingly. Average cost, even if not identical with actual cost, is the best approximation known to accountants. Cf. *Norfolk & Western R. Co.* v. *State of North Carolina*, March 30, 1936, — U. S. —. The defendants will not be suffered to charge the complainant with the

losses of unprofitable transactions because the gains of the profitable ones cannot be reckoned to a nicety. The wrongdoer bears the burden in cases of confusion. *Westinghouse Electric and Mfg. Co.* v. *Wagner Electric and Mfg. Co., supra,* at pp. 618, 620.

6. *Damages, interest and an inspection of the books.*

The master advised an award of damages measured by a reasonable royalty on the amount of the defendants' sales. R. S. § 4921; 35 U. S. C. § 70. This was done on the assumption that the complainant had been unable to make proof of actual damages by reason of diverted sales, and that the defendants were not accountable for profits for the reason that the business had been conducted at a loss. Much of the discussion of this subject in the briefs and at the bar may be discovered to be moot when the account has been restated in accordance with the principles laid down in this opinion.

If, however, an award of damages upon the basis of a reasonable royalty becomes appropriate again, we think that interest should run from the date when the damages are liquidated, and not, as by the present decree, from the date of the last infringement. *Crosby Valve Co.* v. *Safety Valve Co., supra,* at pp. 457, 458; *Tilghman* v. *Proctor,* 125 U. S. 136, 160, 161; *Mowry* v. *Whitney,* 14 Wall. 620, 653. There are no exceptional circumstances justifying a departure from what is at least the general rule.

A word is needed in conclusion as to the asserted right of the defendants to examine the complainant's books. The defendants insist that with the aid of an inspection they can show that actual damages were suffered by reason of diverted sales, and damages so substantial as to forbid the award of a reasonable royalty, a substituted method of assessment to be used if other standards fail. It is not easy to see how the diversion of business, a negative condition, will be made apparent by the books. As we interpret the record, the defendants did not so contend when they asked for an inspection at the hearing before the master. Their position then was that "the damage to the plaintiff arising out of its alleged loss of sales was inconsiderable in amount." If, however, it shall appear upon the restatement of the account that in the belief of the defendants, reasonably entertained, an inspection of the books is still material and necessary, the propriety of such a remedy may be reconsidered by the master and the court in the light of the entire situation developed at that time.

The decree should be modified in accordance with this opinion, and as modified affirmed. *It is so ordered.*

Mr. Justice VAN DEVANTER took no part in the consideration or decision of the case.